86-456 1178970321

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:
SRF-5J

Ray Miskelley
Office of the Chief Counsel
U. S. Department of Energy
200 Administration Road
Oak Ridge, TN 37831

Frances Kovak
Legal Section
Ohio EPA
1800 Watermark Drive
Columbus, Ohio 43216

Subject: Administrative Consent Order, In the Matter of United States Department of Energy: Portsmouth Gaseous Diffusion Plant, OH7 890 008 983

Dear Ms. Kovak and Mr. Miskelley:

Enclosed please find your originals of the Administrative Consent Order signed by all parties. Please do not hesitate to contact me at (312) 886-4591 if there are any questions.

Sincerely,

Gene Jablonowski
Remedial Project Manager
Federal Facilities Section
SFD Remedial Response Branch #2

cc: Gene Gillespie, U.S. DOE (3 copies)
Bob Sleeman, U.S. DOE (2 copies)
John Sheppard, U.S. DOE (2 copies)
Maria Galanti, Ohio EPA (2 copies)

RECORD COPY

Attorney General
Betty D. Montgomery

June 2, 1997

Brian Barwick
Office of Regional Counsel
U.S. Environmental Protection Agency
77 W. Jackson Blvd.
C-29A
Chicago, IL 60604

C. Ray Miskelley
Office of Chief Counsel
U.S. Department of Energy
P.O. Box 2001
Oak Ridge, TN 37831

Re: Administrative Consent Order, In the Matter of United States Department of Energy: Portsmouth Gaseous Diffusion Plant, US EPA Administrative Docket No. OH7 890 008 983

Dear Mr. Barwick and Mr. Miskelley:

As you know, during the past two years, representatives of the Ohio Environmental Protection Agency (Ohio EPA), the U.S. Environmental Protection Agency (US EPA) and the U.S. Department of Energy (US DOE) have completed negotiations of an amendment to the above-referenced Administrative Consent Order. The negotiated amended Order (Order) is intended to streamline remediation of US DOE's Portsmouth Gaseous Diffusion Plant (PORTS). The Ohio Attorney General's Office fully supports streamlining remediation at PORTS by establishing Ohio EPA as the regulator overseeing day-to-day remediation activities as provided in the Order. The Ohio Attorney General's Office intends to sign the Order, but first seeks agreement from US EPA and US DOE to confirm the parties' understandings and agreements as to three matters in the Order. This letter serves to confirm those understandings and agreements.

The first understanding and agreement is that the Order is not an order against Ohio EPA. The order provides that "OEPA shall be responsible for day-to-day oversight of response action activities at PORTS under this Order." Paragraph 39; see, also, paragraphs 42, 46 and 52. Notwithstanding the occasional use of the term "shall" when referring to Ohio EPA, it is understood and agreed that the Order is not enforceable against Ohio EPA.

The second understanding and agreement is that the Order does not supersede the Consent Decree issued on September 1, 1989, in State of Ohio v. U.S. Department of Energy, U.S. Southern District of Ohio, Case No. C2 89 732. According to the Order, "[i]f any term of this Order conflicts with any term of the Ohio Decree, any other administrative order, permit, license or approved plan, the latter shall control for the purposes of any OEPA enforcement action." Paragraph 64.e. This understanding and agreement applies, for example, to Paragraph 60 and Section XI of the Order, which have provisions that address the federal Anti-Deficiency Act and force majeure, respectively, in a manner different from Paragraph 19.1 of the Consent Decree. It is understood and agreed that provisions in the Consent Decree concerning the federal Anti-Deficiency Act and force majeure control over Paragraph 60 and Section XI of the Order for purposes of any enforcement action by Ohio EPA under the Consent Decree.

Mr. Barwick has asked the parties to confirm that the authorization that US EPA issued for Ohio to implement corrective action requirements under the federal Resource Conservation and Recovery Act, as amended, 42 U.S.C. Section 6901, et seq (RCRA), does not prevent issuance of the Order. See 61 Fed. Reg. 54950 (October 23, 1996). Paragraph 4 of the Order refers to various authorizations that US EPA has issued to Ohio under RCRA, and indicates that the authorization of June 7 and August 19, 1991 "did not include RCRA corrective action." The corrective action authorization occurred while the Order was in the process of being signed by the parties. It is understood and agreed that the authorization for Ohio to implement corrective action under RCRA does not prevent issuance of the Order.

If US EPA and US DOE concur with the understandings and agreements in this letter, I ask that you sign this letter in the space provided below and return it to me. I have included three originals of this letter so that I can return to each agency an original for its records. When I receive back this letter with your signatures, I will sign the Order and transmit it to US EPA for its signature.

Please do not hesitate to contact us if there are any questions.

Very truly yours,

BETTY D. MONTGOMERY
ATTORNEY GENERAL OF OHIO

Christopher Jones, Chief
Environmental Enforcement Section
(614) 466-2766

cc: Fran Kovac, Ohio EPA/Legal
Brian Blair, Ohio EPA/SEDO

Date

Title - Director, Superfund Division
U.S. Environmental Protection Agency

June 12, 1997
Date

Title - Attorney
U.S. Department of Energy

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
AND THE STATE OF OHIO

IN THE MATTER OF:	)
	)
UNITED STATES DEPARTMENT OF ENERGY: PORTSMOUTH GASEOUS DIFFUSION PLANT	) Administrative Docket Number:
	)
OH7 890 008 983	) Proceeding under 3008(h) of the Resource Conservation and Recovery Act, as amended, 42 U.S.C. Section 6928(h) and 106(a) of the Environmental Response, Compensation, and Liability Act, as amended, 42 U.S.C. Section 9606(a).

CONTENTS

ADMINISTRATIVE CONSENT ORDER

The United States Environmental Protection Agency (U.S. EPA), the Ohio Environmental Protection Agency (OEPA), and the United States Department of Energy (U.S. DOE) (referred to collectively herein as the "Parties"), based on the information available to them on the effective date of this Administrative Consent Order ("ACO" or "Order"), and without trial or adjudication of any issues of law or fact, agree as follows:

The purpose of this Order is to: (1) ensure compliance by U.S. DOE at the Portsmouth Gaseous Diffusion Plant (PORTS) with the Resource Conservation and Recovery Act (RCRA), as amended, 42 U.S.C. Section 6901 et seq., and implementing regulations, (2) ensure compliance by U.S. DOE at PORTS with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended, 42 U.S.C. Section 9601 et seq., and implementing regulations, and (3) establish a structure for oversight of U.S. DOE activities which encourages expeditious and efficient clean-up of Hazardous Waste, Hazardous Constituents, and/or Hazardous Substances present at PORTS.

I. JURISDICTION

1. U.S. EPA enters into this Order pursuant to Sections 2002(a)(1) and 3008(h) of RCRA, 42 U.S.C. Sections 6912(a)(1) and 6928(h), respectively. The authority vested in the Administrator has been delegated to the Regional Administrators by U.S. EPA Delegation Nos. 8-31 and 8-32 dated April 16, 1985, and further delegated to the Director, Waste Management Division, by U.S. EPA Delegation No. 8-32 dated August 1987.

2. With respect to any Hazardous Substance which is not a Hazardous Waste, U.S. EPA enters into this Consent Order pursuant to the authority vested in the President of the United States by Sections 104 and 106(a) of CERCLA 42 U.S.C. Sections 9604 and 9606(a). The authority of the President to issue this Order has been delegated under Sections 104 and 106(a) of CERCLA, 42 U.S.C. Section 9604 and 9606(a), to the Administrator of U.S. EPA, with the concurrence of the Attorney General, by Executive Order 12580 dated January 23, 1987, 52 Federal Register 2923 (January 29, 1987), and further delegated to the Assistant Administrator for Solid Waste and Emergency Response and the Regional Administrator by U.S. EPA Delegation No. 14-14-C and further delegated to the Associate Division Director of Superfund.

3. With respect to any Hazardous Substance which is not a Hazardous Waste, U.S. DOE enters into this Order pursuant to Sections 104 and 106(a) of CERCLA, 42 U.S.C. Sections 9604 and 9606(a), Executive Order 12580, and the Atomic Energy Act of 1954, as amended, 42 U.S.C. Sections 2011 et seq. U.S. DOE waives any claims or demands for compensation or payment under

section 106(b), 111, and 112 of CERCLA against the Hazardous Substance Response Trust Fund established by Section 221 of CERCLA for, or arising out of, any activity performed or expenses incurred pursuant to this Order. This Order does not constitute any decision or preauthorization of funds under Section 111(a)(2) of CERCLA.

4. On June 30, 1989, pursuant to Section 3006 of RCRA, 42 U.S.C. §6926, U.S. EPA authorized the State of Ohio to administer and enforce the Ohio hazardous waste management program in lieu of the Federal base RCRA program, including regulation of mixed waste. On June 7 and August 19, 1991, Ohio received authorization from U.S. EPA for additional RCRA program elements which did not include RCRA corrective action. For the purposes of 40 CFR §271.6(b), the State of Ohio has designated OEPA as the State agency responsible for administration of the authorized State hazardous waste management program.

5. The State of Ohio, OEPA, enters into this Order pursuant to Sections 120(a)(4), 120(f), and 121(f) of CERCLA, 42 U.S.C. §§ 9620(a)(4), 9620(f), and 9621(f), RCRA, and Ohio Revised Code Sections 3734.13, 3734.20, 3745.01, and 6111.03.

6. Should PORTS be listed on the NPL, Section 120(e) of CERCLA will require that U.S. EPA and DOE enter into an Interagency Agreement to which Ohio may be Party. The Parties agree that it is now premature to negotiate an Interagency Agreement but expect, based on the current legal framework and information known to the parties as of the effective date of this Order, that any such agreement will, to the extent allowed by law, maintain the structure for oversight of U.S. DOE activities established in this Order.

II. DEFINITIONS

Any term not herein defined shall have the same meaning as used in RCRA, CERCLA, and any implementing regulations.

"CERCLA" means the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. Section 9601 et seq., as amended by the Superfund Amendments and Reauthorization Act of 1986, Pub. L. 99-499.

"CMI" shall mean Corrective Measures Implementation which requires U.S. DOE to design and construct the response action selected by U.S. EPA and to operate, monitor, and maintain the remedy after construction. The CMI plan includes general plans, and a schedule for preparation of design criteria and detailed engineering plans, specifications and construction drawings as necessary to implement the approved cleanup actions, and schedules for selection of contractors, commencement of work, and completion of work. CMI under this Order shall be deemed to be

those documents referenced in Paragraph 7.6 of the Ohio Decree as workplans for cleanup provided such documents collectively contain all of the information specified in Attachment III to this Order (Information does not include requirements relating to schedules for submitting documents, progress reports, the submittal of draft documents, or other procedural/non-substantive provisions of the attachment).

"CMS" shall mean Corrective Measures Study which will develop and evaluate the response action alternative(s) to be undertaken at the Facility. CMS under this Order shall be deemed to be the documents referenced in Paragraph 7.5 of the Ohio Decree as the "cleanup alternatives study (CAS)" provided such documents collectively contain all of the information specified in Attachment II to this Order for remediation of hazardous wastes, and hazardous constituents, pursuant to Section 3008(h) of RCRA (42 U.S.C. § 6928(h)), and hazardous substances which are not hazardous wastes pursuant to Sections 104 and 106(a) of CERCLA (42 U.S.C. §§ 9604 and 9606(a)) (Information does not include requirements relating to schedules for submitting documents, progress reports, the submittal of draft documents, or other procedural/non-substantive provisions of the attachment).

"Day" shall, for the purposes of computing any period of time prescribed or allowed under this Order, not include the day of the event from which the designated period begins to run but all calendar days thereafter unless otherwise specified elsewhere in this Order. If a due date should fall on a Federal or State holiday or a Saturday or Sunday, such due date shall be deemed to fall on the next business day.

"Effective Date" shall mean seven days after the date on which this Order is signed by U.S. EPA.

"Facility" shall have the meaning provided in 40 CFR Section 260.10 and Section 101(9) of CERCLA, as amended, 42 U.S.C. Section 9601(9).

"Hazardous Constituents" are the substances listed in Appendix VIII to 40 CFR Part 261 and Appendix IX to 40 CFR Part 264.

"Hazardous Substance" shall have the meaning provided in Section 101(14) of CERCLA, 42 U.S.C. Section 9601(14).

"Hazardous Waste" shall have the meaning provided in Section 1004(5) of RCRA, 42 U.S.C. Section 6903(5).

"RCRA" means the Resource Conservation and Recovery Act, 42 U.S.C. Section 6901 et seq., as amended.

"Response action activities" shall mean those U.S. DOE activities, more fully described in Section VI of this Order, related to investigation and cleanup of releases of hazardous wastes, and hazardous constituents, pursuant to Section 3008(h) of RCRA (42 U.S.C. § 6928(h)), and hazardous substances which are not hazardous wastes pursuant to Section 104 and 106(a) of CERCLA (42 U.S.C. §§ 9604 and 9606(a)), at the PORTS Facility.

"RFI" shall mean RCRA Facility Investigation which gathers sufficient data to fully characterize the nature, extent, and rate of migration of hazardous substances, within and beyond the Facility boundary. RFI under this Order shall be deemed to be the documents referenced in Paragraph 7.4 of the Ohio Decree as facility investigation workplans provided such documents collectively contain all of the information specified in Attachment I to this Order (Information does not include requirements relating to schedules for submitting documents, progress reports, the submittal of draft documents, or other procedural/non-substantive provisions of the attachment).

"Work" shall mean any activity directly related to completing all required or necessary action to achieve the purposes of this Order.

III. FINDINGS OF FACT

7. PORTS commenced operations in 1954 and is located approximately twenty miles north of downtown Portsmouth, Ohio. PORTS operations are located on a 15.4 square kilometer (3700 acres) federally owned site. Several rural communities lie within a few kilometers of the site.

8. PORTS is an industrial Facility owned by the U.S. DOE and, since July 1, 1993, operated by the United States Enrichment Corporation (USEC). Pursuant to Section 1403(a) of the Energy Policy Act of 1992 (Public Law 102-486), U.S. DOE leases uranium enrichment facilities at PORTS to USEC. Pursuant to Section 1403(d) of the Energy Policy Act, U.S. DOE is responsible for any costs of decontamination and decommissioning, response action activities, or corrective actions with respect to conditions existing before the July 1, 1993, date that PORTS operations were assumed by USEC.

9. The primary function of PORTS is the enrichment of uranium for use in fueling power plants and U.S. Navy vessels. The principal radioactive elements present in waste materials handled at the Facility are uranium and technetium. The principal non-radioactive Hazardous Wastes known to be generated at PORTS are those exhibiting characteristics of ignitability (Hazardous Waste Number D001); TCLP for chromium, lead, and cadmium (Hazardous Wastes Number D007, D008, and D006); and various listed wastes including: spent halogenated solvents such

as TCE; spent non-halogenated solvents; as well as small quantities of laboratory chemicals such as vanadium pentoxide, aniline, formaldehyde, formic acid, lead acetate, and thioacetamide (Hazardous Waste Numbers F001, F002, F003, F004, P120, U012, U122, U123, U144, and U218).

10. On August 18, 1980, the U.S. DOE submitted a notification of hazardous waste activity at the Facility as required by Section 3010(a) of RCRA, 42 U.S.C. Section 6930(a), on July 12, 1984, the U.S. DOE filed a RCRA Part A permit application as required by Section 3005(a) of RCRA, 42 U.S.C. Section 6925(a), to treat, store, and dispose of Hazardous Waste at the Facility. Subsequently U.S. DOE filed a RCRA Part A permit application revision on September 9, 1988. OEPA transmitted PORT's RCRA Part B Permit Application to the Ohio Hazardous Waste Facility Board on March 18, 1993.

11. On July 8, 1985, and November 12, 1985, U.S. EPA issued Findings of Non-Compliance to U.S. DOE identifying RCRA violations and U.S. EPA's major concerns over the environmental impacts associated with PORTS past and present operations.

12. On September 30, 1986, U.S. EPA and U.S. DOE entered into a Federal Facility Compliance Agreement (FFCA) addressing RCRA violations cited in the July 8, 1985, and November 12, 1985, U.S. EPA Findings of Non-compliance.

13. On September 1, 1989, U.S. DOE and Ohio filed a Consent Decree, Civil Action Number C2-89-732, in the United States District Court for the Southern District of Ohio, Eastern Division (Ohio Decree).

14. On September 27, 1989, U.S. EPA and U.S. DOE entered into an Administrative Order by Consent, U.S. EPA Docket Number V-W-90R-03, for the performance of response action activities at PORTS.

15. In August 1994, the September 27, 1989, Administrative Order by Consent was amended to, among other things, include Ohio as a party for the purpose of recovering its oversight costs from U.S. DOE.

IV. DETERMINATIONS BY EPA AND OHIO

Based on the Findings of Fact set forth above, and the administrative record, the Regional Administrator of the U.S. EPA and the Director of the OEPA make the following conclusions of law and determinations:

16. U.S. DOE is subject to all Federal, State, interstate, and local requirements, both substantive and procedural, respecting control and abatement of solid waste or hazardous

waste disposal as set forth in Section 6001 of RCRA, 42 U.S.C. Section 6961.

17. U.S. DOE is subject to the same requirements as a "person" within the meaning of Section 1004(15) of RCRA, 42 U.S.C. Section 6903(15), and Section 101(21) of CERCLA, as amended 42 U.S.C. Section 9601(21).

18. U.S. DOE is the owner of a Facility that has operated or is operating subject to Section 3005(e) of RCRA, 42 U.S.C. Section 6925(e).

19. Certain wastes and constituents thereof found at the Facility are Hazardous Wastes or Hazardous Constituents as defined by Section 1004(5) of RCRA, 42 U.S.C. Section 6903(5). These are also Hazardous Wastes or Hazardous Constituents within the meaning of Section 3001 of RCRA, 42 U.S.C. Section 6921, and 40 CFR Part 261.

20. There are or have been releases of Hazardous Wastes and Hazardous Constituents from the Facility into the environment within the meaning of Section 3008(h) of RCRA, 42 U.S.C. Section 6928(h), and the issuance of a Corrective Action Order is authorized pursuant to this Section.

21. The PORTS is a facility within the meaning of Section 101(9) of CERCLA, as amended, 42 U.S.C. Section 9601(9).

22. Certain wastes found at the Facility are Hazardous Substances as defined by Sections 101(14) and 101(33) of CERCLA, 42 U.S.C. §§ 9601(14) and 9601(33).

23. There are or have been releases of Hazardous Substances from the Facility into the environment within the meaning of Section 101(22) of CERCLA.

24. All determinations necessary for the issuance of an Order under Section 106(a) of CERCLA, 42 U.S.C. Section 9606(a), have been made at the Facility.

25. The actions and response measures required by this Order are consistent with RCRA and CERCLA and are necessary to ascertain the nature and extent of the releases from the Facility and to protect human health and the environment.

26. U.S. DOE and U.S. EPA entered into the Uranium Enrichment Toxic Substances Control Act Federal Facilities Compliance Agreement (UE TSCA FFCA) on February 20, 1992. Any polychlorinated biphenyl (PCB) contamination at the PORTS facility that is not specifically addressed by the UE TSCA FFCA shall be responded to by U.S. DOE in accordance with CERCLA, the National Contingency Plan, and applicable U.S. EPA policy. This

Paragraph 26 shall not affect any application of the Ohio Decree to PCBs at PORTS.

V. STIPULATIONS

27. The Ohio Decree and the August 1994, U.S. EPA, OEPA, and U.S. DOE Administrative Order by Consent, U.S. EPA Docket Number V-W-90-03 contain the same substantive requirements for RCRA corrective actions. However, procedural differences, as well as other factors, have caused delays in the implementation of response action activities.

28. OEPA has the necessary expertise and resources to oversee the day-to-day conduct of response action activities at PORTS.

29. For the purposes of this Order only, OEPA will be deemed to have authority to direct response action activities at PORTS. OEPA shall exercise such authority in accordance with RCRA and its implementing regulations, CERCLA, the National Contingency Plan, and applicable U.S. EPA policy.

30. Paragraph 29 will not be construed as:

A. a DOE recognition that OEPA has legal authority under CERCLA or other law to require response action activities at PORTS with respect to CERCLA hazardous substances;

B. a DOE recognition that OEPA has legal authority to regulate radioactive wastes or the radioactive component of mixed waste at PORTS; or

C. U.S. EPA or U.S. DOE delegation of CERCLA authority to OEPA.

31. Paragraphs 28 and 29 will not be used by any of the parties to support the position that OEPA has legal authority under CERCLA or other law to require response action activities at PORTS with respect to CERCLA hazardous substances and pollutants or contaminants or that OEPA has legal authority to regulate radioactive wastes or the radioactive component of mixed waste at PORTS.

32. Designating OEPA as the regulator responsible for day-to-day oversight at the PORTS shall not be construed as U.S. EPA authorization of Ohio under Section 3006 of RCRA nor delegation of any U.S. EPA CERCLA authority.

33. Concurrent with the time this Order is effective, the August 1994, U.S. EPA, OEPA, and U.S. DOE Administrative Order by Consent, U.S. EPA Docket Number V-W-90R-03, shall be terminated. U.S. EPA approvals which were granted under the terminated Order

shall remain in effect and are in no way diminished or rescinded by this Order. U.S. DOE agrees that it will, within the timeframes specified by the terminated order, address any U.S. EPA comments on U.S. DOE documents submitted under the terminated Order which have not, at the time this Order is effective, been addressed by U.S. DOE. Notwithstanding the forgoing, the Quadrant I-IV RFI Reports and the Quadrant I-IV CMS Reports, as well as all future document submittals shall, subject to Paragraph 41 of this Order, require only OEPA approval.

34. In the event that the Ohio Decree is amended, modified, or otherwise revised, any reference to the Ohio Decree in this Order shall mean the Ohio Decree as amended, modified, or otherwise revised. Each Party shall have thirty (30) days from the date it receives notice of any such change in which to raise to the other Parties any concerns about the amended, modified, or otherwise revised Ohio Decree's incorporation in this Order. In the event a Party raises any concerns, all the Parties agree to enter into good faith negotiations as expeditiously as possible concerning any necessary revisions to this Order and to conclude such negotiations within ninety (90) days. These negotiations shall be limited to the purpose of making this Order consistent, if possible, with the Ohio Decree. If concerns are timely raised, requirements of this Order that are alleged to be inconsistent with the Ohio Decree shall be tolled during the period of good faith negotiations, which may be extended by consent of all of the Parties. At the end of the good faith negotiation period, any Party may refer the matter for resolution under the dispute resolution provisions of this Order.

35. It is the expectation of the Parties that the structure of oversight established in this Order will result in diminished U.S. EPA participation in the day-to-day oversight of response action activities at PORTS, including reviewing and commenting on documents required by this Order.

36. This Order does not address the treatment of RCRA waste generated by response action activities conducted under this Order. The Parties acknowledge that treatment of these wastes will be governed by an order to be issued by the State of Ohio under authority of the Federal Facility Compliance Act, 42 USC Section 3021(b) or other appropriate state authority.

37. This Order shall apply to U.S. DOE, its officers, successors in office, directors, agents, employees, contractors, and subsequent owners and all operators of PORTS in Piketon, Ohio.

VI. OVERSIGHT

38. U.S. DOE agrees to conduct the following response action activities at PORTS in accordance with the procedural and

schedule requirements of Paragraphs 7.3 through 7.8 and Section XI of the Ohio Decree (except as provided in this Order): interim remedial measures (IRM), RCRA facility investigation (RFI), corrective measures study (CMS), and corrective measures implementation (CMI). U.S. DOE agrees to perform, and OEPA agrees to oversee, the Supplemental Environmental Project approved pursuant to the May 10, 1993, Agreement Resolving Dispute Concerning Revised Quadrant III RCRA Facility Investigation Workplan.

39. OEPA shall be responsible for day-to-day oversight of response action activities at PORTS under this Order. OEPA's oversight authority under this Order includes, but is not limited to, providing direction and advice, review and comment on, and approval of, U.S. DOE documents, granting of time extensions, and recommendation of final remedies to U.S. EPA. Oversight does not include exclusive right to select final remedies under this Order, although OEPA reserves its right to select final remedies pursuant to the Ohio Decree. As part of its oversight responsibilities, OEPA agrees to ensure that the documents referenced in Paragraphs 7.4, 7.5, and 7.6 of the Ohio Decree contain all of the information required for an RFI, CMS, and CMI, respectively, as defined in Section II of this Order. OEPA's authority under this Order does not include the right to enforce the requirements of this Order under Ohio law, and nothing in this Order shall be construed as an order under Ohio law requiring compliance with the requirements of this Order.

40. By the fifteenth day of January, April, July, and October, U.S. DOE shall submit a report to U.S. EPA describing response action activities during the preceding three months with a schedule of projected activities for the next three months.

41. U.S. DOE shall, within five (5) days of receiving a U.S. EPA request for any document provided to OEPA pursuant to this Order, provide such document to U.S. EPA. Within the timeframes established by the Ohio Decree, U.S. EPA may review and comment on any document and any such comments must be taken into account and addressed by U.S. DOE or OEPA. U.S. EPA comments shall be substantial and material with respect to the technical content of such documents. U.S. EPA will, to the extent practicable, present its comments to U.S. DOE in coordination with OEPA comments.

42. Following completion and approval of each RFI Report and CMS Report and in accordance with the requirements and schedules set forth in the Ohio Decree, OEPA shall select a proposed remedy(ies) and request U.S. EPA concurrence with that selection. With its request for U.S. EPA concurrence, OEPA shall

send a copy of the approved RFI Report and CMS Report, OEPA's draft Statement of Basis for its proposed remedy, and a list of all other relevant documents in the administrative record file. U.S. DOE agrees to provide to U.S. EPA any other documents requested by U.S. EPA from the administrative record file. Any such documents shall be provided within ten days or as agreed by U.S. DOE and U.S. EPA Project Coordinators.

43. Within 60 days of receiving OEPA's request for concurrence and any additional documents requested by U.S. EPA from U.S. DOE under Paragraph 42, U.S. EPA shall issue a written concurrence with the proposed remedy or send a written notice of non-concurrence to U.S. DOE and OEPA. U.S. EPA shall have sixty (60) days after the date of any written notice of non-concurrence, or after the conclusion of any dispute resolution procedures under this Order, to formally concur with the OEPA draft Statement of Basis or issue a separate Statement of Basis. A written notice of non-concurrence shall describe in detail the deficiencies of the proposed remedy, the reasons therefore, and delineate the changes to the proposed remedy(ies). A concurrence notice means U.S. EPA agrees with OEPA's proposed remedy(ies) as proposed.

44. U.S. DOE must prepare a complete Administrative Record supporting the selection of the corrective measure and make the Administrative Record available for public review at the DOE Environmental Information Center in Pike County when the OEPA and U.S. EPA Statements of Basis for each Quadrant are released for public comment.

45. The Administrative Record and OEPA's and U.S. EPA's Statement(s) of Basis for selecting a proposed remedy(ies) shall be available for public review and comment for at least thirty (30) days.

46. After completion of the public review and comment period for OEPA's and U.S. EPA's Statement(s) of Basis for selecting a proposed remedy(ies), the U.S. EPA in consultation with OEPA shall select the final remedy(ies) to be implemented at the Facility. If U.S. EPA and OEPA select the same remedy(ies), OEPA shall prepare, in consultation with U.S. EPA, a Record of Decision (ROD) and Response to Comments. If U.S. EPA and OEPA select different remedies, U.S. EPA shall have one-hundred twenty (120) days from the close of the public review and comment period to issue a ROD and Response to Comments and notify OEPA and U.S. DOE, in writing, of the selected final remedy. Except as specified in Section IX herein, U.S. EPA's selection of a final remedy shall be final and not subject to dispute in any forum.

47. Following final remedy selection, U.S. DOE shall submit to OEPA the CMI for implementation of the remedy. Following

review and approval by OEPA, U.S. DOE shall implement the final remedy in accordance with the CMI.

48. The provisions of this Order do not eliminate U.S. EPA's responsibility for oversight of Ohio's exercise of its authorized RCRA authorities. In carrying out such oversight, U.S. EPA shall follow the statutory and regulatory procedures for such oversight.

VII. DOE REIMBURSEMENT OF OHIO COSTS

49. U.S. DOE shall request funding and reimburse OEPA for the costs of monitoring work ("Work") directly related to the implementation of this Order, including but not limited to the costs of payroll, fringe, indirect, review of activity data sheets, travel, sampling, laboratory analysis, data management, safety and general equipment, supplies and general maintenance. This reimbursement shall be subject to the conditions and limitations set forth in this Section and Section VIII below (Funding). OEPA costs related to State activities conducted pursuant to the Consent Decree in State of Ohio v. U.S. Department of Energy, et al., Case No. C2 89 732 (S.D. Ohio 1989) shall not be excluded from reimbursement pursuant to this Section if these activities are also directly related to Work under this Order.

50. Reimbursable costs shall consist only of expenditures actually made by OEPA in providing assistance to PORTS:

A. Technical review and substantive comment on reports or studies which U.S. DOE prepares in support of its site cleanup actions and submits to OEPA or any other technical review in support of this Order.

B. Identification and explanation of State requirements applicable to Federal facilities in performing Work, especially State applicable or relevant and appropriate requirements (ARARS).

C. Field visits to ensure investigations and cleanup activities are implemented in accordance with appropriate OEPA requirements, or in accordance with agreed upon conditions between OEPA and U.S. DOE that are established in the framework of this Order. This shall include review of draft data in order to analyze and guide fieldwork.

D. Support and assistance to U.S. DOE in the conduct of public participation activities in accordance with Federal and State requirements for public involvement.

E. Preparation for and participation in technical meetings.

F. Laboratory costs incurred as a result of split sampling performed in order to validate U.S. DOE's investigations under this Order.

G. Review of U.S. DOE's cost estimates and scheduling documents associated with the cleanup program, including site specific Activity Data Sheets and Five Year Plans.

H. Other activities specified in this Order.

51. A separate grant shall be the specific mechanism for transfer of funds between U.S, DOE and OEPA for payment of the costs referred to herein.

52. On an annual basis, (1) OEPA shall submit, in a timely fashion and in writing, to U.S. DOE a grant application including a proposed Scope of Work and estimates of costs to be incurred relating to the Work, as defined herein, to be performed under this Order by OEPA for the upcoming year, and (2) subsequent to negotiation between U.S. DOE and OEPA, U.S. DOE shall make a grant award. These actions shall be performed utilizing the procedures of 10 C.F.R. Part 600 Subparts A, D, and E with the following exceptions:

A. Notwithstanding 10 CFR Section 600.405, U.S. DOE shall not impose any additional requirements on this cost reimbursement except with the written consent of OEPA.

B. OEPA shall remit to U.S. DOE interest earned on advances as necessary and where required by the Cash Management Improvement Act and its implementing regulations, 31 CFR Part 205, which shall apply in lieu of 10 CFR Section 600.421(i).

C. U.S. DOE payments shall be made in advance in accordance with 10 CFR Section 421(c).

D. Pursuant to 10 CFR Section 600.443(a)(i), U.S. DOE may temporarily withhold a cash payment pending correction of any material noncompliance related to that cash payment. U.S. DOE may use the noncompliance and enforcement remedies of 10 CFR Part 600 Subparts A, D, and E including but not limited to those in Sections 600.29 and 600.43, to prevent the expenditure by OEPA of money on expenses not authorized by Paragraphs 49 and 50 of this Section or to recover money spent by OEPA on such unauthorized expenses. U.S. DOE shall not suspend or terminate grant payments for expenses authorized by Paragraphs 49 and 50 of this Section. U.S. DOE shall not use its noncompliance and enforcement remedies against OEPA for any punitive purposes unless necessary to address fraud. Any withholding, suspension, or termination of payment of costs pursuant to 10 CFR Part 600 Subparts A, D, or E shall be subject to the informal dispute resolution and appeals procedures as described in Paragraphs 53 and 54 of this Section.

53. In the event that U.S. DOE contends that any costs incurred were not directly related to the implementation of this Order, or were incurred in a manner inconsistent with Federal law or the grant award, U.S. DOE may challenge the costs allowable under the grant to OEPA. Whenever practicable, U.S. DOE and OEPA shall attempt to resolve informally any dispute over the award or administration of financial assistance including any matter controlled by this Section. U.S. DOE and OEPA representatives may initiate the informal process by requesting that the involved parties attempt to resolve any issue covered by this Section. Such informal resolution shall begin with the representative of the U.S. DOE contracting officer who signed the grant to the State agency implementing the cost recovery provisions of this Order and the contract representative of OEPA attempting to resolve the issue. If they are not successful, they may elevate the issue to the cognizant Contracting Officer for purposes of dispute resolution pursuant to 10 CFR 600.26(a), and the Fiscal Officer for the Division of Emergency and Remedial Response of OEPA for resolution. If these parties are unable to agree on resolution, each of the involved parties will issue a written decision setting forth their position on the issue. The written position of U.S. DOE shall be deemed to be the Contracting Officer's determination from which a formal appeal may be taken. This written position will be issued within 21 days after the parties agree that they are unable to informally resolve the issue.

54. If unresolved after conclusion of informal dispute resolution under Paragraph 53 of this Section, OEPA's demand and U.S. DOE's challenge may be resolved through the appeals procedures set forth in 10 CFR Section 600.443(b) and 10 CFR Part 1024 as modified below:

A. The procedure of appeal shall be the method specified in 10 CFR Section 1024.3(d)(1), regardless of the amount in dispute.

B. Unless OEPA requests a hearing, OEPA shall not be required to make any appearances outside of Dayton, or Columbus, Ohio in exercising appeal procedures under 10 CFR Part 1024.

C. Notwithstanding Rule 5(a)(4) of the Rules of Procedure of the U.S. DOE Financial Assistance Appeal Board, OEPA may seek to recover the contested costs through any other mechanism available to the State if the Board's decision has not been issued within ninety (90) days after all submissions are filed or after the time for filing has expired, whichever occurs earlier.

55. Subject to Paragraphs 56 and 57 of this Section, U.S. DOE shall not be responsible under the terms of this Order for reimbursing OEPA for any costs actually incurred in excess of the maximum U.S. DOE obligation as defined in the grant award. Any

invoiced amounts exceeding the maximum U.S. DOE obligation shall roll over into the next grant period.

56. OEPA's performance of its obligations under this Order shall be excused if its response costs as defined herein are not paid as required by this Section VII.

57. OEPA reserves any right it may have to recover costs for matters not reimbursable pursuant to this Order and the grant award, costs not reimbursed by U.S. DOE pursuant to Section VII after exhaustion of the appeals procedures described in Paragraphs 53 and 54 of this Section, costs in excess of the maximum U.S. DOE obligation in the grant award, or costs not being paid because U.S. DOE and OEPA have been unable to successfully conclude negotiations on the terms or language of the grant award.

58. Within sixty (60) days of the effective date of this Order, U.S. DOE shall reimburse the State for preaward costs of its activities at PORTS, which are consistent with the activities required by this Order, incurred between October 15, 1994 and June 30, 1995, in the amount of $189,499.75. State costs incurred after June 30, 1995 shall be reimbursed pursuant to paragraphs 49 through 57, above.

VIII. FUNDING

59. It is the expectation of the Parties to this Order that all obligations of the U.S. DOE arising under this Order will be fully funded. The U.S. DOE shall take all necessary steps and use its best efforts to obtain timely funding to meet its obligations under this Order. U.S. DOE shall advise U.S. EPA and OEPA of its efforts to obtain the funding necessary to implement this Order. This requirement shall include, but not be limited to, U.S. DOE providing U.S. EPA and OEPA a copy of its annual report to Congress which includes the specific cost estimates and budgetary proposals associated with the implementation of this Order.

60. U.S. DOE's performance of the commitments under this Order is subject to the availability of appropriated funds for such purposes. Failure to obtain adequate funds or appropriations from Congress does not, in any way, release U.S. DOE from its obligations to comply with RCRA and CERCLA. In cases where payment or obligation of funds would constitute a violation of the Anti-Deficiency Act, 31 U.S.C. Section 1341, the schedule established under this Order requiring the payment or obligation of such funds shall be appropriately adjusted. If appropriated funds are not available to fulfill requirements of the Order, U.S. EPA and OEPA reserve the right to initiate such action each deems appropriate to the extent permitted by law.

IX. RESERVATION OF RIGHTS

61. Nothing herein shall be construed as a waiver, delegation, or compromise of any U.S. EPA authority under RCRA, CERCLA, or any other statute.

62. Based upon the information known to the Parties on the effective date of this Order, U.S. EPA agrees that compliance with this Order shall stand in lieu of any civil remedies, including administrative, legal and equitable, against U.S. DOE, its employees, its contractors or their employees, available under current law to U.S. EPA. The scope of this covenant is strictly limited to currently known releases or threatened releases of hazardous substances, hazardous constituents, and hazardous wastes at PORTS which are the subject of activities performed by U.S. DOE, its employees, its contractors or their employees under this Order.

63. Under any of the following circumstances, U.S. EPA may, subject to exhausting dispute resolution, unilaterally withdraw from this Agreement and/or employ any legal means available, including the issuance of administrative orders and the filing of enforcement actions, to address the situation:

A. The requirements of this Order are no longer protective of human health or the environment;

B. Significant and/or continual non-compliance by U.S. DOE with the requirements of this Administrative Order by Consent;

In the absence of either of these two circumstances, U.S. EPA agrees it will not withdraw from this Agreement or bring any administrative, legal, or equitable action against U.S. DOE, its employees, its contractors, or their employees. In the event U.S. EPA determines to exercise rights in accordance with this Paragraph 63, it shall provide written notice to the Parties.

64. OEPA may, subject to exhausting dispute resolution, unilaterally withdraw from this Agreement in any of the following situations:

A. Any of the conditions described in Subsections A and B of Paragraph 63;

B. Disagreement between U.S. EPA and OEPA over any of the response action activities or the final remedy;

C. U.S. EPA failure to timely perform its obligations under this Order;

D. A conflict between the requirements of this Order and the requirements of the Ohio Decree or of State law; and/or

E. Significant and/or continual non-compliance with the Ohio Decree.

Ohio agrees that it will not issue notices of violations of this Order or bring any administrative, legal, or equitable action against U.S. DOE, its employees, its contractors, or their employees, under this Order. Nothing in this Order limits OEPA in its enforcement of the terms of the Ohio Decree, or any other administrative order, permit, license or approved plan, or any State statute or rule. If any term of this Order conflicts with any term of the Ohio Decree, any other administrative order, permit, license or approved plan, the latter shall control for the purposes of any OEPA enforcement action. In the event OEPA determines to exercise rights in accordance with this Paragraph 64, OEPA agrees to provide written notice to the Parties.

65. If U.S. EPA and OEPA are unable to agree on a final remedy, then each reserves its rights to impose its requirements directly on U.S. DOE, to defend the basis for those requirements, and to challenge the other's conflicting requirements. In such event, U.S. DOE reserves all rights and defenses.

66. U.S. EPA and OEPA each reserves its right to seek judicial review of a proposed decision or action taken with respect to response action activities that either U.S. EPA or OEPA claims conflicts with its respective laws. It is the understanding of the Parties that this reservation is intended to provide for challenges where the adequacy of protection of human health and the environment or the means of achieving such protection are at issue.

67. OEPA expressly reserves all rights and defenses it may have under Federal, State, or local law and including the Consent Decree between the State of Ohio and U.S. DOE in State of Ohio v. U.S. Department of Energy, et al., Case No. C2 89 732.

68. Compliance by U.S. DOE with the terms of this Order shall not relieve U.S. DOE of any other obligations to comply with RCRA or any other applicable State or Federal law. Except as expressly provided elsewhere in this Order, U.S. EPA and OEPA reserve the right to take an enforcement action pursuant to RCRA, CERCLA and/or any available legal authority against U.S. DOE or its contractors/operators of PORTS for violations of applicable laws or regulations. Nothing in this Order shall preclude U.S. EPA or OEPA from exercising any administrative, legal and equitable remedies available to them to require additional response action activities by U.S. DOE in the event that: (1) conditions previously unknown or undetected by U.S. EPA and OEPA arise or are discovered at the Facility; or (2) U.S. EPA or OEPA receives additional information not previously available concerning the premises which it employed in reaching the terms of this Order, and the implementation of the requirements of this

Order are no longer protective of human health and the environment.

69. U.S. EPA and OEPA reserve the right to perform any portion of the work agreed to herein or any additional site characterization, feasibility study, and response/corrective action activities as it deems necessary to protect public health or welfare or the environment to the extent authorized by law. Absent an immediate hazard, U.S. EPA and OEPA will not perform work agreed to herein if U.S. DOE is performing said work in a timely and satisfactory manner. However, this Paragraph does not preclude OEPA from performing any of the activities described in this Paragraph or other activities under authority other than this Order, as more fully described in Paragraph 70 of this Section. Notwithstanding compliance with the terms of this Order, U.S. DOE is not released from liability, if any, for the costs of any response action activities taken by U.S. EPA.

70. It is the position of OEPA that the Ohio Decree and the application of State law to PORTS are in no way preempted or otherwise impaired or affected by Federal law or this Order. By signing and participating in this Order, OEPA reserves and does not waive any rights it may have to enforce any provisions of the Consent Decree or State Law at PORTS. OEPA's signing and participation in this Order shall be without prejudice to the position of any party on this issue and OEPA's signing and participation shall not be used by any of the parties as support for its position on this issue. Nothing in this Order, including but not limited to its Funding (Section VIII), Dispute Resolution (Sections X and XI), or Force Majeure (Section XII) provisions, shall constitute a modification of or affect any schedules, dispute resolution procedures, or any other provisions of the Ohio Decree.

71. U.S. EPA expressly reserves its right to require, in the event it is necessary to assure protection of human health and the environment, the development of additional information prior to selecting any tentative, proposed, or final remedy. In any dispute concerning the development of additional information, U.S. EPA shall bear the burden of demonstrating such information is necessary to assure protection of human health and the environment.

72. Nothing in this Order shall be construed as a waiver or compromise of U.S. DOE's jurisdiction over source, special nuclear, and byproduct material under the Atomic Energy Act, 42 U.S.C. Sections 2011 et seq.

73. Ohio hereby releases, covenants not to sue, and not bring any action, including administrative, legal, or equitable remedies against U.S. DOE, its employees, its contractors, or

their employees, to recover costs which have been reimbursed pursuant to this Order.

X. DISPUTE RESOLUTION

74. Should Ohio EPA, U.S. DOE, or U.S. EPA have a good faith dispute under this Order, the procedures of this section shall apply.

75. Disputes concerning any document required under this Order to be submitted to Ohio EPA or U.S. EPA for review and approval shall be resolved pursuant to this Paragraph 75 in lieu of Paragraph 76.

a. U.S. DOE may request a meeting with Ohio EPA and U.S. EPA within five (5) working days of its receipt of the written notice of disapproval or a requirement to modify the document to discuss or dispute any deficiencies specified in the notice. Such meeting shall be held within five (5) working days, if possible, of such request, and may be conducted by telephone unless one of the parties requests a face-to-face meeting. To facilitate such meetings, U.S. DOE, Ohio EPA, and U.S. EPA each shall appoint a project coordinator, who shall make reasonable efforts to resolve all disputes or disagreements informally.

b. Disputes not resolved by the project coordinator shall be referred to the Submittals Dispute Resolution Committee within five (5) working days, if possible. The Submittals Dispute Resolution committee shall have three members consisting of one individual designated by Ohio EPA, one designated by U.S. DOE, and one designated by U.S. EPA. The Ohio EPA representative will be the Chief, Division of Solid and Hazardous Waste Management, or the Chief, Division of Emergency and Remedial Response. The U.S. DOE representative will be the Portsmouth Site Manager. The U.S. EPA representative will be the Chief, Remedial Response Branch.

c. Within three (3) working days of receipt of a disputed matter, the Submittals Dispute Resolution Committee shall meet and attempt resolution. Disputed matters not resolved by the Committee within five (5) working days of receipt of a disputed matter shall be referred to the Executive Committee (EC) for resolution. The EC shall have three members consisting of one individual designated by Ohio EPA, one designated by U.S. DOE, and one designated by U.S. EPA. The Ohio EPA representative will be the Deputy Director of Waste Programs or her designee. The U.S. DOE representative will be the Assistant Manager for Enrichment Facilities. The U.S. EPA representative will be the Director, Superfund Division. The EC shall meet and attempt resolution of the disputed matter.

d. Disputes not resolved by the EC within ten (10) working days of receipt of a disputed matter, shall be referred to the Senior Executive Committee (SEC). Ohio EPA's participation in the SEC is at Ohio EPA's option, and Ohio EPA may choose to invoke or enforce the dispute resolution provisions of the Ohio Decree at any stage of this process. The U.S. EPA representative on the SEC will be the Regional Administrator, Region V or his designee. The U.S. DOE representative on the SEC will be the manager of the DOE Oak Ridge Operations Office or his designee. If Ohio EPA chooses to participate on the SEC, the Ohio EPA representative on the SEC shall be the Director of the Ohio EPA or his designee. If the members to the SEC cannot reach agreement on a disputed matter, all Parties may exercise their respective authorities and rights and U.S. DOE may raise the issue dispute to the Administrator of U.S. EPA.

e. U.S. EPA may elect not to participate in the dispute resolution provisions of Paragraph 75, except that U.S. EPA shall participate in such dispute resolution for any dispute regarding requirements of the Order that are alleged to be inconsistent with requirements of this Ohio Decree and for any dispute regarding U.S. EPA's exercise of authorities reserved under this Order, including determinations made pursuant to Paragraph 41. OEPA may elect not to participate in resolution of disputes at the SEC level.

76. Any good faith dispute over the interpretation of this Order or over whether a term of this Order has been violated, shall be resolved pursuant to this Paragraph 76 in lieu of Paragraph 75.

a. U.S. DOE shall, within fifteen (15) days of any action which it is disputing, provide Ohio EPA and U.S. EPA with a written notice of dispute. U.S. DOE shall, within thirty (30) days of any such action which it is disputing, provide Ohio EPA and U.S. EPA with a written statement of dispute setting forth the nature of the dispute, U.S. DOE's position with respect to the dispute and the information U.S. DOE is relying upon to support its position.

b. Upon receipt of the written statement of dispute, Ohio EPA, U.S. DOE, and U.S. EPA shall engage in dispute resolution among the project coordinators. The project coordinators shall have fourteen (14) days from the receipt by Ohio EPA and U.S. EPA of the written statement of dispute to resolve the dispute. During this period the project coordinators shall meet or confer by telephone as many times as necessary to discuss and attempt resolution of the dispute. If a resolution cannot be reached on any issue within this fourteen (14) day period, Ohio EPA, U.S. DOE, or U.S. EPA may, by written notice, elevate the dispute to the Dispute Resolution Committee (DRC) for resolution.

c. U.S. DOE, Ohio EPA, and U.S. EPA shall each designate one individual to serve on the DRC. The individuals designated to serve or the DRC shall be those designated in subparagraph [D], or their delegate authorized to serve on the DRC on behalf of such designated individual, for the purposes of dispute resolution under this Order. The DRC will serve as a forum for resolution of disputes for which agreement has not been reached pursuant to subparagraph [B].

d. The Ohio EPA designated member of the DRC is the Chief, Division of Emergency and Remedial Response, Ohio EPA. The U.S. DOE designated member is the Assistant Manager for Enrichment Facilities. The U.S. EPA designated member is the Director, Superfund Division. Notice of any delegation of authority from a Party's designated member on the DRC shall be provided to all other Parties.

e. If the designated members of the DRC do not agree on a resolution of the dispute within thirty (30) days, any Party may elevate the dispute to the Senior Executive Committee (SEC). The U.S. EPA representative on the SEC will be the Regional Administrator of U.S. EPA, Region V or his designee. The U.S. DOE representative will be the Manager of the DOE Oak Ridge Operations Office or his designee. The Ohio EPA representative will be the Director of Ohio EPA, or his designee. The SEC members, shall, as appropriate, confer, meet and exert their best efforts to resolve the dispute and issue a written decision signed by all Parties. If the members are unable to reach resolution of the issue in dispute, the Parties may exercise their respective authorities and rights and U.S. DOE may raise the issue in dispute to the Administrator of U.S. EPA.

f. U.S. EPA may elect not to participate in the dispute resolution provisions of Paragraph 76, except that U.S. EPA shall participate in such dispute resolution for any dispute regarding requirements of this Order that are alleged to be inconsistent with requirements of the Ohio Decree and for any dispute regarding U.S. EPA's exercise of authorities reserved under this Order, including determinations made pursuant to Paragraphs 63 and 71. OEPA may elect not to participate in resolution of disputes at the SEC level.

77. In any dispute subject to dispute resolution, the Parties may by written agreement modify the procedures of Paragraphs 74 through 76 above, including but not limited to an extensions or shortening of the times therein or the waiver of any provision set forth herein.

78. It is the intent of the Parties that any dispute arising from this Order will be resolved in accordance with either Paragraphs 75 or 76 and that no Party will exercise other rights and authorities with respect to an issue in dispute until

all dispute resolution provisions of Paragraphs 75 or 76 have been exhausted, irrespective of whether a Party has elected not to participate in the resolution of a dispute under such provision, except that Ohio EPA may choose at any stage of the dispute resolution procedures of Paragraphs 75 or 76 to invoke the dispute resolution provisions of the Ohio Decree.

XI. FORCE MAJEURE

79. U.S. DOE shall perform the requirements of this Order within the time limits set forth herein, unless the performance is prevented or delayed by events which constitute a force majeure. U.S. DOE shall have the burden of proving such a force majeure. A force majeure is defined as any event arising from causes not foreseeable and beyond the control of U.S. DOE which could not be overcome by due diligence and which delays or prevents performance by the date required by this Consent Order. A force majeure event includes delay or inability to perform which results from unresolved inconsistencies between this Order and the Ohio Decree. Determinations regarding whether such an inconsistency constitutes a force majeure event in a specific instance are fact sensitive and will be made on a case by case basis. Force majeure events do not include increased costs of performance, changed economic circumstances, normal precipitation events, or failure to obtain Federal, State or Local permits. It shall be presumed, for purposes of this Order, that delays due to compliance with applicable statutes and regulations governing procurement, despite the exercise of reasonable diligence are unforeseeable and beyond the control of U.S. DOE.

80. U.S. DOE shall notify U.S. EPA in writing seven (7) days after it becomes aware of events which U.S. DOE knows or should know constitute a force majeure. Such notice shall estimate the anticipated length of delay, including necessary demobilization and remobilization, its cause, measures taken or to be taken to minimize the delay, and an estimated time table for implementation of these measures. Failure to comply with the notice provisions of this section shall constitute a waiver of U.S. DOE right to assert a force majeure.

81. If U.S. EPA determines that the delay has been or will be caused by circumstances not foreseeable and beyond U.S. DOE's control, which could not have been overcome by due diligence, the time for performance for that element of the relevant scope of Work shall be extended, upon U.S. EPA approval, for a period equal to the delay resulting from such circumstances. This shall be accomplished through an amendment to the appropriate schedule of this Consent Order. Such an extension does not alter the schedule for performance or completion of other tasks required by any work plan unless these are also specifically altered by amendment of the schedule. In the event that U.S. EPA and U.S. DOE cannot agree that any delay or failure has been or will be

caused by circumstances not reasonably foreseeable and beyond the control of U.S. DOE, which could not have been overcome by due diligence, or if there is no agreement on the length of the extension, the dispute shall be resolved in accordance with the Dispute Resolution provisions of this Order.

XII. MODIFICATIONS AND TERMINATION

82. U.S. DOE and OEPA project coordinators, by mutual agreement, may make modifications to schedules contained in or required by this Order. Prior to granting any schedule extensions of greater than 120 days, for whatever reason, OEPA must consult with U.S. EPA. For the purpose of determining whether an extension of time is for greater than 120 days, the Parties shall count the cumulative length of any previous extensions granted for the scheduled due date.

83. At U.S. DOE's request, the parties will in good faith enter into negotiations to modify this Order in order to:

a. incorporate as a Party(ies) to this Order U.S. DOE contractor(s) conducting response action activities directed by this Order at PORTS; and

b. address the DOE-wide strategy for revising clean-up agreements to reflect the liklihood of reduced appropriations.

84. If any party withdraws from this Order for any of the reasons specified in Paragraphs 63 and 64, and U.S. DOE is without fault with regard to such withdrawal, U.S. EPA and U.S. DOE agree, in good faith, to negotiate the termination of this Order and the requirements of a new Order, prior to U.S. EPA initiating any action, including administrative, legal, or equitable remedies, with respect to activities required by law and covered by this Order.

85. The provisions of this Consent Order shall be deemed satisfied upon U.S. DOE's receipt of written notice from U.S. EPA that U.S. DOE has demonstrated, to the satisfaction of U.S. EPA, that the terms of this Consent Order, including any additional tasks which, subject to the limitations set forth herein, U.S. DOE has agreed to undertake, have been satisfactorily completed. U.S. EPA shall issue such notice after it has been determined that all requirements of this Consent Order have been satisfactorily completed. The Parties intend that any response action selected, implemented and completed to remediate Hazardous Waste, Hazardous Constituents, and hazardous substances contamination identified under this Order shall be protective of human health and the environment such that the response action activities covered by this Order shall obviate the need for further remediation of that contamination.

IT IS SO AGREED:

By: _____
U.S. Department of Energy — Date: 6/14/96

By: _____
U.S. Environmental Protection Agency — Date: 8/11/97

By: _____
Ohio Attorney General — Date: 7/7/97

By: _____
Ohio Environmental Protection Agency — Date: _____

ATTACHMENT I

SCOPE OF WORK FOR A RCRA FACILITY INVESTIGATION

AT PORTSMOUTH URANIUM ENRICHMENT COMPLEX

PURPOSE

The purpose of this RCRA Facility Investigation (RFI) is to determine the nature and extent of releases of hazardous waste or hazardous constituents from regulated units, solid waste management units, and other source areas at the facility and to gather all necessary data to support the Corrective Measures Study. The United States Department of Energy or its agent(s) shall furnish all personnel, materials, and services necessary for, or incidental to performing the RCRA Facility Investigation at Portsmouth Uranium Enrichment Complex (the "facility").

SCOPE

The RCRA Facility Investigation consists of six tasks:

Task 1: Description of Current Conditions

- A. Facility Background
- B. Nature and Extent of Contamination
- C. History of Response Actions
- D. Define Boundary Conditions
- E. Site Map
- F. Laboratory Certification
- G. Implementation of Interim Measures

Task 2: Pre-Investigation Evaluation of Corrective Measures Technologies

Task 3: RFI Workplan Requirements

- A. Project Management Plan
- B. Data Collection Quality Assurance Plan
- C. Data Management Plan
- D. Health and Safety Plan
- E. Community Relations Plan

Task 4: Facility Investigation

- A. Environmental Setting
- B. Source Characterization

C. Contamination Characterization
D. Potential Receptor Identification

Task 5: Investigation Analysis

A. Data Analysis
B. Protection Standards

Task 6: Reports

Task 1: DESCRIPTION OF CURRENT CONDITIONS

U.S. DOE or its agent(s) shall supplement the description of the background information pertinent to the site and its problems and outline the purpose for the RCRA Facility Investigation at the Facility. The data gathered during any previous investigations or inspections and other relevant data should be incorporated.

This task may be conducted concurrently with Task 3, during development of the Work Plan.

A. Facility Background

U.S. DOE or its agent(s) will prepare a summary of the regional location, pertinent area boundary features, ~~boundary features~~, general Facility physiography, hydrogeology, and historical use of the Facility for the treatment, storage, or disposal of solid and hazardous waste. This summary shall at a minimum include:

1. Maps depicting the following:

   a. The general geographic location;

   b. Portsmouth Uranium Enrichment Complex property lines and any adjacent property lines with the owners of all adjacent property clearly indicated;

   c. All known past solid or hazardous waste treatment, storage or disposal areas;

   d. All known past and present product and waste underground tanks or lines.

2. A history of solid and hazardous waste treatment, storage, and disposal activities at the Facility;

3. Details on past product and waste spills including volume, nature, location, and cleanup activities.

4. A description of current closure or remedial activities at the site.

B. Nature and Extent of Problem

Prepare a summary of the actual and potential off-site and on-site health and environmental effects. Include a discussion of the population in the area potentially affected by release of contaminants from the Facility. Describe and report any human or animal illness that may be related to the Facility. Emphasis should be placed upon describing the threat or potential threat to public health and the environment.

C. History or Response Action

Prepare a summary of any previous response actions conducted by either local, State, Federal, or private parties, including site inspections and other technical reports, and their results. A list of reference documents and their locations should be included. The scope of the RCRA Facility Investigation should be developed to address the problems and questions that have resulted from previous work at the site.

D. Define Boundary Conditions

Establish boundary conditions to limit the areas of site investigations. The boundary conditions should be set so that subsequent investigations will cover the contaminated media in sufficient detail to support the following activities (e.g., corrective measures study). The boundary conditions may also be used to identify boundaries for site access control and security.

E. Site Map

Prepare a site map showing all wetlands, floodplains, water features, drainage patterns, tanks, building, utilities, paved areas, easements, rights-of-way, and other features. The site map and all topographical surveys shall be consistent with the requirements of 40 CFR 270.14 and be of sufficient detail and accuracy to locate and report all existing and future work performed at the site.

F. Laboratory Certification

U.S. DOE or its agent(s)' laboratory will be required to pass a performance audit prior to performing any analyses under this Agreement. The audit will include a maximum of two (2) performance evaluation samples for each of the analytical methods specified under Task 3B.

U.S. DOE or its agent(s) are expected to qualify as well as quantify the parameters of interest. The results shall include all supporting data as required for a Quality Assurance Project Plan (QAPP) as specified by U.S. EPA.

An on-site laboratory visit will be performed by a U.S. EPA Quality Assurance Office to verify compliance with required analytical procedures.

G. Implementation of Interim Measures

U.S. DOE or its agent(s)' report shall document interim measures which were or are being undertaken at the facility. This shall include:

1. Objectives of the interim measures: how the measures is mitigating a potential threat to human health and the environment and/or is

consistent with and integrated into any long term solution at the facility;

2. Design, construction, operation, and maintenance requirements;

3. Schedules for design, operation, and maintenance requirements; and

4. Schedules for progress reports.

TASK 2: PRE-INVESTIGATION EVALUATION OR CORRECTIVE MEASURES TECHNOLOGIES

U.S. DOE or its agent(s) shall submit to U.S. EPA a report that identifies the potential corrective measure technologies that may be used on-site or off-site for the containment, treatment, remediation, and/or disposal of contamination. This report shall also identify any field data that needs to be collected in the facility investigation to facilitate the evaluation and selection of the final corrective measure or measures (e.g., compatibility of waste and construction materials, information to evaluate effectiveness, treatability or waste, etc.)

TASK 3: RFI WORK PLAN REQUIREMENTS

U.S. DOE or its agent(s) shall prepare a RCRA Facility Investigation (RFI) Workplan. This RFI shall include the submission of several plans to the U.S. EPA for approval, each of which is a unique product, but represents a combined work product and require concurrent preparations. During the RFI, it may be necessary to revise the Sampling Plan to increase or decrease the detail of information collected to accommodate the facility specific situation. The RFI Work Plan shall include the following:

A. Project Management Plan

U.S. DOE or its agent(s) shall prepare a Project Management Plan which will include a discussion of the technical approach, schedules, and personnel. The Project Management Plan will also include a description of qualifications of personnel performing or directing the RFI, including contractor personnel. This plan shall also document the overall management approach to the RFI.

B. U.S. DOE or its agent(s) shall prepare a plan to document all monitoring procedures, sampling, field measurements and sample analyses performed during the investigation to characterize the environmental setting, source, and contamination, so as to ensure that all information, data, and resulting decisions are technically sound, statistically valid, and properly documented.

1. Data Collection Strategy

The strategy section of the Data Collection Quality Assurance Plan shall include but not be limited to the following:

a. Description of the intended uses for the data, and the necessary level of precision and accuracy for these intended uses;

b. Description of methods and procedures to be used to assess the precision, accuracy, and completeness of the measurement data; and

c. Description of the rationale used to assure that the data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, a process condition or an environmental condition. Examples of factors which shall be considered and discussed include:

   i) Environmental conditions at the time of sampling;

   ii) Number of sampling points;

   iii) Representativeness of selected media; and

   iv) Representativeness of selected analytical parameters.

d. Description of the measures to be taken to assure that the following data sets can be compared to each other:

   i) RFI data generated by the Owner/Operator over some time period;

   ii) RFI data generated by an outside laboratory or consultant versus data generated by the Owner/Operator;

   iii) Data generated by separate consultants or laboratories; and

   iv) Data generated by an outside consultant or laboratory over some time period.

e. Details relating to the schedule and information to be provided in, quality assurance reports. The reports should include but not be limited to:

   i) Periodic assessment of measurement data accuracy, precision, and completeness;

   ii) Results of performance audits;

   iii) Results of system audits;

iv) Significant quality assurance problems and recommended solutions;

v) U.S. EPA performance audits; and

vi) Resolutions of previously stated problems.

2. Sampling

The Sampling section of the Data Collection Quality Assurance Plan shall discuss:

a. Selecting appropriate sampling locations, depths, etc.;

b. Providing a statistically sufficient number of sampling sites;

c. Measuring all necessary ancillary data;

d. Determining conditions under which sampling should be conducted;

e. Determining which media are to be sampled (e.g., groundwater, air, soil, sediment, etc.);

f. Determining which parameters are to be measured and where;

g. Selecting the frequency of sampling and length of sampling period;

h. Selecting the types of samples (e.g., composites vs. grabs) and number of samples to be collected;

i. Documenting field sampling operations and procedures, including;

i) Documentation of procedures for preparation of reagents or supplies which become an integral part of the sample (e.g., filters, and adsorbing reagents);

ii) Procedures and forms for recording the exact location and specific considerations associated with sample acquisition;

iii) Specific sample preservation methods;

iv) Calibration of field devices;

v) Collection of replicate samples;

vi) Submission of field-biased blanks, where appropriate;

vii) Potential interference present at the facility;

viii) Construction materials and techniques, associated with monitoring wells and piezometers;

ix) Field equipment and sample containers

x) Sampling order; and

xi) Decontamination procedures.

j. Selecting appropriate sample containers;

k. Sample preservation; and

l. Chain-of-custody, including;

i) Standardized field tracking reporting forms to establish sample custody from the time of collection through arrival at the designated laboratory; and

ii) Pre-prepared sample labels containing all information necessary for effective sample tracking.

3. Field Measurements

The Field Measurements section of the Data Collection Quality Assurance Plan shall discuss:

a. Selecting appropriate field measurement locations, depth, etc.;

b. Providing a statistically sufficient number of field measurement;

c. Measuring all necessary ancillary data;

d. Determining conditions under which field measurement should be conducted;

e. Determining which media are to be addressed by appropriate field measurements (e.g., groundwater, air, soil, sediment, etc.);

f. Determining which parameters are to be measured and where;

g. Selecting the frequency of field measurement and length of field measurement period; and

h. Documenting field measurement operations and procedures, including:

i) Procedures and forms for recording raw data and the exact location, time, and facility-specific considerations associated with the data acquisition;

ii) Calibration of field devices;

iii) Collection of replicate measurements;

iv) Submission of field-biased blanks, where appropriate;

v) Potential interferences present at the facility;

vi) Construction materials and techniques associated with monitoring wells and piezometers used to collect field data;

vii) Field equipment listing;

viii) Order in which field measurements were made; and

ix) Decontamination procedures.

4. Sample Analysis

The Sample Analysis section of the Data Collection Quality Assurance Plan shall specify the following:

a. Chain-of-custody procedures, including:

i) Identification of a responsible party to act as sample custodian at the laboratory facility authorized to sign for incoming field samples, obtain documents of shipment, and verify the data entered onto the sample custody records;

ii) Provision for a laboratory sample custody log consisting of serially number standard lab-tracking report sheets; and

iii) Specification of laboratory sample custody procedure for sample handling, storage, and dispersement for analysis.

b. Sample storage;

c. Sample preparation methods;

d. Analytical procedures, including;

i) Scope and application of the procedures;

ii) Sample matrix;

iii) Potential interferences;

iv) Precision and accuracy of the methodology; and

v) Method detection limits.

e. Calibration procedures and frequency;

f. Data reduction, validation and reporting;

g. Internal quality control checks, laboratory performance and system audits and frequency, including:

i) Method blank(s);

ii) Laboratory control sample(s);

iii) Calibration check sample(s);

iv) Replicate sample(s);

v) Matrix-spiked sample(s);

vi) "Blind" quality control sample(s);

vii) Control charts;

viii) Surrogate samples;

ix) Zero and span gases; and

x) Reagent quality control checks.

h. Preventative maintenance procedures and schedules;

i. Corrective action (for laboratory problems); and

j. Turnaround time.

C. Data Management Plan

U.S. DOE or its agent(s) shall develop and initiate a Data Management Plan to document and track investigation data and results. This plan shall identify and set up data documentation materials and procedures, project file requirements, and project-related progress reporting procedures and documents. The plan shall also provide the format to be used to present the raw data and conclusions of the investigation.

1. Data Record

The data record shall include the following:

a. Unique sample or field measurement codes;

b. Sampling or field measurement location and sample or measurement type;

c. Sampling or field measurement-raw data;

d. Laboratory analysis ID number;

e. Property or component measured; and

f. Result of analysis (e.g., concentration).

2. Tabular Displays

The following data shall be presented in tabular displays:

a. Unsorted (raw) data;

b. Results for each medium, or for each constituent monitored;

c. Data reduction for statistical analysis;

d. Sorting of data by potential stratification factors (e.g., location, soil layer, topography); and

e. Summary data.

3. Graphical Displays

The following data shall be presented in graphical formats (e.g., bar graphs, line graphs, area or plan maps, isopleth plots, cross-sectional plots or transects, three dimensional graphs, etc.):

a. Displays sampling location and sampling grid;

b. Indicated boundaries of sampling area, and areas where more data are required;

c. Displays levels of contamination at each sampling location;

d. Displays geographical extent of contamination;

e. Displays contamination, levels, averages, and maxima;

f. Illustrate changes in concentration in relation to distance from the source, time, depth or other parameters; and

g. Indicate features affecting intramedia transport and show potential receptors.

D. Health and Safety Plan

U.S. DOE or its agent(s) shall prepare a facility Health and Safety Plan.

1. Major elements of the Health and Safety Plan include:

b. Describe the known hazards and evaluate the risks associated with the incident and with each activity conducted;

c. List key personnel and alternates responsible for site safety, response operations, and for protection of public health;

d. Describe levels of protection to be worn by personnel;

e. Delineate work area;

f. Establish procedures to control site access;

g. Describe decontamination procedures for personnel and equipment;

h. Establish site emergency procedures;

i. Address emergency medical care for injuries and toxicological problems;

j. Describe requirements for an environmental surveillance program;

k. Specify any routine and special training required for responders;

l. Establish procedures for protecting workers from weather-related problems; and

m. Establish emergency site procedures.

2. The Facility Health and Safety Plan shall be consistent with:

a. NIOSH Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities (1985);

b. U.S. EPA Order 1440.1 - Respiratory Protection;

c. U.S. EPA Order 1440.3 - Health and Safety Requirements for Employees engaged in Field Activities;

d. Facility Contingency Plan;

e. U.S. EPA Standard Operating Safety Guide (1984);

f. OSHA regulations particularly in 29 CFR 1910 and 1926;

g. State and local regulations; and

h. Other U.S. EPA guidance as provided.

E. Community Relations Plan

U.S. DOE or its agent(s) shall prepare a plan for the dissemination of information to the public regarding investigation activities and results.

TASK 4 - FACILITY INVESTIGATION

U.S. DOE or its agent(s) shall conduct those investigations necessary to: characterize the facility (Environmental Setting); define the source (Source Contamination); define the degree and extent of contamination (Contamination Characterization); and identify the actual or potential receptors.

The investigations should result in data of adequate technical content to support the development and evaluation of the corrective measure alternative or alternatives during the Corrective Measures Study.

The site investigation activities shall follow the subplans set forth in Task 3. All sampling and analysis shall be conducted in accordance with the Data Collection Quality Assurance Plan. All sampling locations shall be documented in a log and identified on a detailed site map.

A. Environmental Setting

U.S. DOE or its agent(s) shall collect information to supplement and verify existing information on the environmental setting at the facility. U.S. DOE or its agent(s) shall characterize the following:

1. Hydrogeology

U.S. DOE or its agent(s) shall conduct a program to evaluate hydrogeologic conditions at the facility. This program shall provide the following information:

a. A description of the regional and facility specific geologic and hydrogeologic characteristics affecting groundwater flow beneath the facility, including:

i) Regional and facility specific stratigraphy: description of strata including strike and dip, and identification of stratigraphic contacts;

ii) Structural geology: description of local and regional structural features (e.g., folding, faulting, tilting, jointing, etc.);

iii) Depositional history;

iv) Regional and facility specific groundwater flow patterns; and

v) Identification and characterization of areas and amounts of recharge and discharge.

b. An analysis of topographic features that might influence the groundwater flow system. (Note: Stereographic analysis of aerial photographs should aid in this analysis);

c. Based on field data, tests, and cores, a representative and accurate classification and description of the hydrogeologic units which may be part of the migration pathways at the facility (i.e., the aquifers and any intervening saturated and unsaturated units), including:

   i) Hydraulic conductivity and porosity (total and effective);

   ii) Lithology, grain size, sorting, degree of cementation;

   iii) An interpretation of hydraulic interconnections between saturated zones; and

   iv) The attenuation capacity and mechanism of the natural earth materials (e.g., ion exchange capacity, organic carbon content, mineral content etc.).

d. Based on field studies and cores, structural geology and hydrogeologic cross sections showing the extent (depth, thickness, lateral extent) of hydrogeologic units which may be part of the migration pathways identifying:

   i) Sand and gravel deposits in unconsolidated deposits;

   ii) Zones of fracturing or channeling in consolidated or unconsolidated deposits;

   iii) Zones of high permeability or low permeability that might direct or restrict the flow of contaminants;

   iv) The uppermost aquifer (geologic formation, group of formations, or part of a formation capable of yielding a significant amount of groundwater to wells or springs); and

   v) Water-bearing zones above the first confining layer that may serve as a pathway for contaminant migration, including perched zones of saturation;

e. Based on data obtained from groundwater monitoring wells and piezometers installed upgradient and downgradient of the potential contaminant source, a representative description of water lever or fluid pressure monitoring including:

   i) Water-level contour and/or potentiometric maps;

   ii) Hydrologic cross sections showing vertical gradients;

   iii) The flow system, including the vertical and horizontal components of flow; and

iii) The flow system, including the vertical and horizontal components of flow; and

iv) Any temporal changes in hydraulic gradients, for example, due to tidal or seasonal influences; and

f. A description of manmade influences that may affect the hydrogeology of the site, identifying:

i) Local water-supply and production wells with an approximate schedule of pumping; and

ii) Manmade hydraulic structures (pipelines, french drains, ditches).

2. Soils

U.S. DOE or its agent(s) shall conduct a program to characterize the soil and rock units above the water table in the vicinity of the contaminant release(s). Such characterization shall include but not be limited to, the following information:

a. SCS soil classification;
b. Surface soil distribution;
c. Soil profile, including ASTM classification of soils;
d. Transects of soil stratigraphy;
e. Hydraulic conductivity (saturated and unsaturated);
f. Relative permeability;
g. Bulk density;
h. Porosity;
i. soil sorptive capacity;
j. Cation exchange capacity (CEC);
k. Soil organic content;
l. Soil pH;
m. Particle size distribution;
n. Depth of water table;
o. Moisture content;
p. Effect of stratification on unsaturated flow;
q. Infiltration;
r. Evapotranspiration;
s. Storage capacity;
t. Vertical flow rate; and
u. Mineral content.

3. Surface Water and Sediment

U.S. DOE or its agent(s) shall conduct a program to characterize the surface water bodies in the vicinity of the facility. Such characterization shall include, but not be limited to, the following activities and information:

a. Description of the temporal and permanent surface-water bodies including:

i) For lakes and estuaries: location, elevation, surface area, inflow, outflow, depth, temperature stratification, and volume;

ii) For impoundments: location, elevation, surface area, depth, volume, freeboard, and purpose of impoundment;

iii) For streams, ditches, and channels: location, elevation, flow, velocity, depth, width, seasonal fluctuations, and flooding tendencies (i.e., 100-year event);

iv) Drainage patterns; and

v) Evapotranspiration.

b. Description of the chemistry of the natural surface water and sediments. This includes determining the pH, total dissolved solids, total suspended solids, biological oxygen demand, alkalinity, conductivity, dissolved oxygen profiles, nutrients NH3, NO3/NO2, PO4), chemical oxygen demand, total organic carbon, specific contaminant concentrations, etc.; and

c. Description of sediment characteristics including:

i) Deposition area;

ii) Thickness profile; and

iii) Physical and chemical parameters (e.g., grain size, density, organic carbon content, ion exchange capacity, pH, etc.).

4. Air

U.S. DOE or its agent(s) shall provide information characterizing the climate in the vicinity of the facility. Such information shall include, but not be limited to:

a. A description of the following parameters:

i) Annual and monthly rainfall averages;

ii) Monthly temperature averages and extremes;

iii) Wind speed and direction;

iv) Relative humidity/dew point;

v) Evapotranspiration data; and

vii) Climate extremes that have been known to occur in the vicinity of the facility, including frequency of occurrence; and

b. A description of topographic and manmade features which affect air flow and emission pattern, including:

i) Hills, or valleys;

ii) Surface water bodies (e.g., rivers, lakes, etc.);

iii) Wind breaks and forests; and

iv) Buildings

3. Source Characterization

U.S. DOE or its agent(s) shall collect analytical data to completely characterize the wastes and the areas where wastes have been placed, including: type; quantity; physical form; disposition (containment or nature of deposits); and facility characteristics affecting release (e.g., facility security, and engineered barriers). This shall include quantification of the following specific characteristics, at each source area:

1. Unit/Disposal Area Characteristics:

a. Location of unit/disposal area;
b. Type of unit/disposal area;
c. Design features;
d. Operating practices (past and present):
e. Period of operation;
f. Age of unit/disposal area;
g. General physical conditions; and
h. Method used to close the unit/disposal area.

2. Waste Characteristics:

a. Type of wastes placed in each unit; including;

i) Hazardous classification (e.g., flammable, reactive corrosive, oxidizing or reducing agent);

ii) Quantities; and

iii) Chemical composition.

b. Physical and chemical characteristics, including:

i) Physical form (solid, liquid, gas);

ii) Physical description (e.g., powder, oily sludge);

iii) Temperature;

iv) pH;

v) General chemical class (e.g., acid, base, solvent);

vi) Molecular weight;

vii) Density;

viii) Boiling point;

ix) Viscosity;

x) Solubility in water;

xi) Cohesiveness of the waste;

xii) Vapor pressure;

xiii) Radionuclide:

xiv) Radiological activity; and

xv) Radiological solubility class (D,W,Y).

c. Migration and dispersal characteristics of the waste, including:

i) Sorption;

ii) Biodegradability, bioconcentration, biotransformation;

iii) Photodegradation rates;

iv) Hydrolysis rates; and

v) Chemical transformation.

U.S. DOE or its agent(s) shall document the procedures used in making the above determinations.

C. Contamination Characterization

U.S. DOE or its agent(s) shall collect analytical data on groundwater, soils, surface water, sediment, and subsurface gas contamination in the vicinity of the facility. This data shall be sufficient to define the extent, origin, direction, and rate of movement of contaminant plumes and shall include appropriate radiological backgrounds. Data shall include time and location of samplings, and the identity of the individuals performing the sampling and analysis. U.S. DOE or its agent(s) shall address the following types of contamination at the facility:

1. Groundwater Contamination

U.S. DOE or its agent(s) shall conduct a groundwater investigation to characterize any immiscible or dissolved plumes of contamination at the facility. This investigation shall at a minimum provide the following information:

a. A description of the horizontal and vertical extent of any immiscible or dissolved plumes originating from the facility;

b. The horizontal and vertical directions of contamination movement;

c. The velocities of contaminant movement;

d. The horizontal and vertical concentration profiles of Appendix IX constituents in the plumes;

e. An evaluation of factors influencing the plume movement; and

f. An extrapolation of future contaminant movement.

U.S. DOE or its agent(s) shall document the procedures to be used in making the above determinations (e.g., well design, well construction, geophysics, modeling, etc.).

2. Soil Contamination

U.S. DOE or its agent(s) shall conduct an investigation to characterize the contamination of the soil, interstitial gas, and sediments above the water table in the vicinity of the contaminant release. The investigation shall include the following information:

a. A description of the vertical and horizontal extent of contamination;

b. A description of contaminant and soil chemical properties within the contaminant source area and plume. This includes contaminant solubility, speciation, leachability, exchange capacity, biodegradability, hydrolysis, photolysis, oxidation, and other factors that might affect contaminant migration and transformation;

c. Specific contaminant concentrations;

d. The velocity and direction of contaminant movement; and

e. An extrapolation of future contaminant movement.

U.S. DOE or its agent(s) shall document the procedures used in making the above determinations.

3. Surface Water and Sediment Contamination

U.S. DOE or its agent(s) shall conduct a surface water investigation to characterize contamination in surface water bodies resulting from the contaminant releases at the facility. The investigation shall include, but not be limited to, the following information:

a. A description of the horizontal and vertical extent of any immiscible or dissolved plume(s) originating from the facility, and the extent of contamination in underlying sediments;

b. The horizontal and vertical direction of contaminant movement;

c. The contaminant velocities;

d. An evaluation of the physical, biological and chemical factors influencing contaminant movement;

e. An extrapolation of future contaminant movement; and

f. A description of the chemistry of the contaminated surface waters and sediments. This includes determining the pH, total dissolved solids, and specific contaminant concentrations, etc.

4. Air Contamination

U.S. DOE or its agent(s) shall conduct an investigation to characterize the particulate and gaseous contaminants released into the atmosphere. This investigation shall provide the following information:

a. A description of the horizontal and vertical direction and velocity of contaminant movement;

b. The rate and amount of releases; and

c. The chemical and physical composition of the contaminants released, including horizontal and vertical concentration profiles.

D. Potential Receptors

U.S. DOE or its agent(s) shall collect data describing the human populations and environmental systems that are susceptible to contaminant exposure from the facility. Chemical analysis of biological samples may be needed. Data on observable effects in ecosystems also may be needed. The following characteristics shall be identified:

1. Local uses and possible future uses of groundwater:

a. Type of use (e.g., drinking water source, municipal, residential, agricultural, domestic/non-potable, and industrial); and

b. Locations of groundwater users, including wells and discharge areas.

2. Local uses and possible future uses of surface water draining from the facility:

a. Domestic and municipal (e.g., potable, lawn/gardening watering);

b. Recreational (e.g., swimming, fishing);

c. Agricultural;

d. Industrial; and

e. Environmental (e.g., fish and wildlife propagation).

3. Human use or access to the facility and adjacent lands, including but not limited to:

a. Recreation;

b. Hunting;

c. Residential;

d. Commercial; and

e. Relationship between population locations and prevailing wind direction.

4. A description of the biota in surface water bodies on, adjacent to, or affected by the facility.

5. A description of the ecology overlying and adjacent to the facility.

6. A demographic profile of the people who use or have access to the facility and adjacent land, including, but not limited to: age, sex, and sensitive subgroups.

7. A description of any endangered or threatened species near the facility.

TASK 5: INVESTIGATION ANALYSIS

U.S. DOE or its agent(s) shall prepare an analysis and summary of all facility investigations and their results. The objective of this task shall be to ensure that the investigation data are sufficient in quality (e.g., quality assurance procedures have been followed) and quantity to describe the nature and extent of contamination, potential threat to human health and the environment, and to support the Corrective Measures Study.

A. Data Analysis

U.S. DOE or its agent(s) shall analyze all facility investigation data outlined in Task 4 and prepare a report on the type and extent of contamination at the facility including sources and migration pathways. The report shall describe the extent of contamination (qualitative/quantitative) in relation to the background levels indicative for the area.

B. Protection Standards

1. Groundwater Protection Standards

U.S. DOE or its agent(s) shall provide information to support the Agency's selection/development of Groundwater Protection Standards for all of the Appendix IX constituents found in the groundwater during the Facility Investigation (Task 4).

a. The Groundwater Protection Standards shall consist of:

i) For any constituents listed in Table 1 of 40 CFR 264.94, the respective value given in that table (MCL) if the background level of the constituents is below that given in Table 1; or

ii) The background level of that constituent in the groundwater; or

iii) U.S. EPA-approved Alternate Concentration Limit (ACL).

b. Information to support the Agency's subsequent selection of Alternate Concentration Limits (ACLs) shall be developed by the U.S. DOE or its agent(s) in accordance with U.S. EPA guidance. For any proposed ACLs, U.S. DOE or its agent(s) shall include a justification based upon the criteria set forth in 40 CFR 264.94(b).

c. Within forty-five (45) days of receipt of any proposed ACL, the U.S. EPA shall notify U.S. DOE or its agent(s) in writing of approval, disapproval or modifications. The U.S. EPA shall specify in writing the reasons for any disapproval or modification.

d. Within forty-five (45) days of receipt of the U.S. EPA's notification of disapproval of any proposed ACL, the U.S. DOE or its agent(s) shall amend and submit revisions to the U.S. EPA.

2. Other Relevant Protection Standards

U.S. DOE or its agent(s) shall identify and consider all relevant and applicable standards or criteria for protection of human health and the environment (e.g., National Ambient Air Quality Standards, Federally-approved State Water Quality Standards, water quality criteria, health advisories, proposed MCLs, etc.).

ATTACHMENT II

SCOPE OF WORK FOR A CORRECTIVE MEASURES STUDY

AT PORTSMOUTH URANIUM ENRICHMENT COMPLEX

PURPOSE

The purpose of the Corrective Measures Study (CMS) is to develop and evaluate the corrective action alternative(s) and to recommend the corrective measure(s), if any, to be taken at Portsmouth Uranium Enrichment Complex. The United States Department of Energy (U.S. DOE) or its agent(s) will furnish the personnel, materials, and services necessary to prepare the Corrective Measures Study (CMS), except as otherwise specified.

SCOPE

The Corrective Measure Study consists of four tasks:

Task 7: Identification and Development of the Corrective Measure Alternatives

A. Description of Current Situation
B. Establishment of Corrective Action Objectives
C. Screening of Corrective Measure Technologies
D. Identification of the Corrective Measure Alternatives

Task 8: Laboratory and Bench-Scale Studies

Task 9: Evaluation of the Corrective Measures Alternatives(s)

A. Technical/Environmental/Human Health/Institutional
B. Cost Estimates

Task 10: Reports

A. Progress
B. Draft
C. Final

TASK 7: IDENTIFICATION AND DEVELOPMENT OF THE CORRECTIVE MEASURE ALTERNATIVES

Based on the results of the RCRA Facility Investigation and consideration of the identified Preliminary Corrective Measure Technologies (Task 2), U.S. DOE or its agent(s) shall identify, screen, and develop the alternatives for removal, containment, treatment, and/or other remediation of the contamination based on the objectives established for the corrective action.

A. Description of Current Situation

U.S. DOE or its agent(s) shall submit an update of the information describing the current situation at the facility and the known nature and extent of the contamination as documented by the RCRA Facility Investigation (RFI) Report. U.S. DOE or its agent(s) shall provide an update to the information presented in Task 1 of the RFI to the Agency regarding previous response activities and any interim measures which have been implemented at the facility. U.S. DOE or its agent(s) shall also make a facility-specific statement of the purpose for the response, based on the results of the RCRA Facility Investigation. The statement purpose should identify the actual or potential exposure pathways that should be addressed by corrective measures.

B. Establishment of Corrective Action Objectives

U.S. DOE or its agent(s), in conjunction with the U.S. EPA shall establish site specific objectives for the corrective action. These objectives shall be based on public health and environmental criteria, information gathered during the RCRA Facility Investigation, U.S. EPA guidance, and the requirements of any applicable Federal statutes. At a minimum, all corrective actions concerning groundwater releases must be consistent with, and as stringent as, those required under 40 CFR 264.100.

C. Screening of Corrective Measure Technologies

U.S. DOE or its agent(s) shall review the results of the RFI and reassess the technologies specified in Task 2 to identify any additional technologies which are applicable at the facility. U.S. DOE or its agent(s) shall screen the preliminary corrective measure technologies identified in Task 2 of the RFI and any supplemental technologies to eliminate those that may not prove feasible to implement, that rely on technologies unlikely to perform satisfactorily or reliably, or that do not achieve the corrective measure objective within a reasonable time period. This screening process focuses on eliminating those technologies which have several limitations for a given set of waste and site specific condition. The screening step may also eliminate technologies based on inherent technology limitations.

D. Identification of the Corrective Measure Alternative(s)

U.S. DOE or its agent(s) shall develop the corrective measure alternatives based on the corrective action objectives and analysis of Preliminary Corrective Measure Technologies, as presented in Task 2 of the RFI, and as supplemented following the preparation of the RFI Report. U.S. DOE or its agent(s) shall rely on sound engineering practices to determine which of the previously identified technologies appear most suitable for the site. Technologies can be combine to form the overall corrective measure alternatives. The alternatives developed should represent a workable number of options that appear to adequately address all site problems and corrective action objectives. Each alternative may consist of an individual technology or a combination of technologies. U.S. DOE or its agent(s) shall document the reasons for excluding technologies identified in Task 2, as supplemented in the development of the alternatives.

TASK 8: LABORATORY AND BENCH-SCALE STUDIES

The U.S. DOE or its agent(s) shall conduct laboratory and/or bench-scale studies to determine the applicability of remedial technologies to site conditions and problems. U.S. DOE or its agent(s) shall analyze the technologies based on literature review, vendor contacts, and past experience to determine the testing requirements.

The U.S. DOE or its agent(s) shall develop a testing plan identifying the type(s) and goal(s) of the study(s), the level of effort needed, and data management and interpretation guidelines for submission to U.S. EPA for review and approval.

Upon completion of the testing, U.S. DOE or its agent(s) shall evaluate the testing results to assess the technologies with respect to the site-specific questions identified in the test plan and scale up those technologies selected based on testing results.

The U.S. DOE or its agent(s) shall prepare a report summarizing the testing program and its results, both positive and negative.

Site, waste, and technology characteristics which are used to screen inapplicable technologies are described in more detail below:

A. Site Characteristics

Site data should be reviewed to identify conditions that may limit or promote the use of certain technologies. Technologies whose use is clearly precluded by site characteristics should be eliminated from further consideration.

B. Waste Characteristics

Identification of waste characteristics that limit the effectiveness or feasibility of technologies is an important part of the screening process. Technologies clearly limited by these waste characteristics should be eliminated from consideration. Waste characteristics particularly affect the feasibility of in-situ methods, direct treatment methods, and land disposal (on/off site).

C. Technology Limitation

During the screening process, the level of technology development, performance record, and inherent construction, operation and maintenance problems should be identified for each technology considered. Technologies that are unreliable, perform poorly, or are not fully demonstrated may be eliminated in the screening process. For example, certain treatment methods have been developed to a point where they can be implemented in the field without extensive technology transfer or development.

TASK 9: EVALUATION OF THE CORRECTIVE MEASURE ALTERNATIVE (S)

U.S. DOE or its agent(s) shall describe each corrective measure alternative that passes through the Initial Screening in Task 7 and evaluate each corrective measure alternative and its components. The evaluation shall be based on technical, environmental, human health, and institutional concerns. U.S. DOE or its agent(s) shall also develop cost estimates for each corrective measure.

A. Technical/Environmental/Human Health/Institutional

U.S. DOE or its agent(s) shall provide a description of each corrective measure alternative which includes, but is not limited to the following: preliminary process flow sheets; preliminary sizing and types of construction for buildings and structures; and rough quantities of utilities required. U.S. DOE or its agent(s) shall evaluate each alternative in the four following areas:

1. Technical

U.S. DOE or its agent(s) shall evaluate each corrective measure alternative based on performance, reliability, implement-ability, and safety.

a. U.S. DOE or its agent(s) shall evaluate performance based on the effectiveness and useful life of the corrective measure.

i) Effectiveness shall be evaluated in terms of the ability to perform intended functions, such as containment, diversion, removal, destruction, or treatment. The effectiveness of each corrective measure shall be determined either through design specifications or by performance evaluation. Any specific waste or site characteristic which could potentially impede effectiveness shall be considered. The evaluation should also consider the effectiveness of combinations of technologies; and

ii) Useful life is defined as the length of time the level of effectiveness can be maintained. Most corrective measure technologies, with the exception of destruction, deteriorate with time. Often, deterioration can be slowed through proper system operation and maintenance, but the technology eventually may require replacement. Each corrective measure shall be evaluated in terms of the projected service lives of its component technologies. The appropriateness of the technologies must also be considered in estimating the useful life of the project.

b. U.S. DOE or its agent(s) shall provide information on the reliability of each corrective measure including its operation and maintenance requirements and demonstrated reliability:

i) Operation and maintenance requirements include the frequency and complexity of necessary operation and maintenance. Technologies requiring frequent or complex operation and maintenance activities should be regarded as less reliable than technologies requiring less operation and maintenance. The availability of labor and materials to meet these requirements shall also be considered; and

ii) Demonstrated and expected reliability is a way of measuring the risk and effect of failure. U.S. DOE or its agent(s) shall evaluate whether the technologies have been used effectively under analogous conditions; whether the combinations of technologies have been used together effectively; whether failure of any one technology has an immediate impact on receptors; and whether the corrective measure has the flexibility to deal with uncontrollable changes at the site.

c. U.S. DOE or its agent(s) shall describe the Implementability of each corrective measure, including the relative ease of installation (constructability) and the time required to achieve a given level of response:

i) Constructability is determined by conditions both internal and external to the facility conditions, and includes such items as location of underground utilities, depth to water table, heterogeneity of subsurface materials, and location of the facility (i.e., remote location vs. a congested urban area). U.S. DOE or its agent(s) shall evaluate what measures can be taken to facilitate construction under these conditions. External factors which affect implementation include the need for special permits or agreements, equipment availability, and the location of suitable off-site treatment or disposal facilities; and

ii) Time has two components that shall be addressed: the time it takes to implement a corrective measure; and the time it takes to actually see beneficial results. Beneficial results are defined as the reduction of contaminants to some acceptable, pre-established level.

d. U.S. DOE or its agent(s) shall evaluate each corrective measure alternative with regard to safety. This evaluation shall include threats to the safety of nearby communities and environments as well as to workers during implementation. Factors to consider are fire, explosion, and exposure to hazardous substances

2. Environmental

U.S. DOE or its agent(s) shall perform an Environmental Assessment for each alternative. The Environmental Assessment shall focus on the facility conditions and pathways of contamination actually addressed by each alternative.

The Environmental Assessment for each alternative will include, at a minimum, an evaluation of: the short and long-term beneficial and adverse effects of the response alternatives; and adverse effects on an environmentally sensitive area; and an analysis of measures to mitigate adverse effects.

3. Human Health

U.S. DOE or its agent(s) shall assess each alternative in terms of the extent to which it mitigates short and long-term potential exposure to any residual contamination and how it protects human health both during and after implementation of the corrective measure. The assessment will describe the levels and characterizations of contaminants on site, potential exposure routes, and the potentially affected population. Each alternative will be evaluated to determine the level of exposure to contaminants and the reduction over time. For management of mitigation measures, the relative reduction of impact will be determined by comparing residual levels of each alternative with existing criteria, standards, or guidelines acceptable to U.S. EPA and OEPA.

4. Institutional

U.S. DOE or its agent(s) shall assess relevant institutional needs for each alternative. Specifically, the effects of Federal, State and local environmental and public health standards, regulations, guidance, advisories, ordinances, or community relations on the design, operation, and timing of each alternative.

B. Cost Estimate

U.S. DOE or its agent(s) shall develop and estimate of the cost of each corrective measure alternative (and for each phase or segment of the alternative). The cost estimate shall include both capital and operation and maintenance costs.

1. Capital costs consist of direct (construction) and indirect (nonconstruction and overhead) costs.

   a. Direct capital costs include:

      i) Construction costs: Costs of materials, labor (including fringe benefits and worker's compensation); and equipment required to install the corrective measure;

      ii) Equipment costs: Cost of treatment, containment, disposal and/or service equipment necessary to implement the action; these materials remain until the corrective action is complete;

      iii) Land and site-development costs: Expenses associated with purchase of land and development of existing property; and

      iv) Buildings and service costs: Costs of process and nonprocess buildings, utility connections, purchased services, and disposal costs;

   b. Indirect capital costs include:

      i) Engineering expenses; Costs of administration, design, construction supervision, drafting and testing of corrective measure alternatives;

      ii) Legal fees and license or permit costs: Administrative and technical costs necessary to obtain licenses and permits for installation and operation;

iii) Startup and shakedown costs: Costs incurred during corrective measure startup; and

iv) Contingency allowances: Funds to cover costs resulting from unforeseen circumstances, such as adverse weather conditions, strikes, and inadequate facility characterization.

2. Operation and maintenance costs are post-construction costs necessary to ensure continued effectiveness of a corrective measure. U.S. DOE or its agent(s) consider the following operation and maintenance cost components:

a. Operating labor costs: Wages, salaries, training, overhead, and fringe benefits associated with the labor needed for post-construction operations;

b. Maintenance materials and labor costs: Cost for labor, parts, and other resources required for routine maintenance of facilities and equipment;

c. Auxiliary materials and energy: Costs of such items as chemicals and electricity for treatment plant operations, water and sewer service, and fuel;

d. Purchased services: Sampling cost, laboratory fees, and professional fees for which the need can be predicted;

e. Disposal and treatment costs: Costs of transporting, treating and disposing of waste materials, such as treatment plant residues, generated during operations;

f. Administrative costs: Costs associated with administration of corrective measure operation and maintenance not included under other categories;

g. Insurance, taxes, and licensing costs: Costs of such items as liability and sudden accidental insurance; real estate taxes on purchased land or right-of-way; licensing fees for certain technologies; and permit renewal and reporting costs;

h. Maintenance reserve and contingency funds: Annual payments into escrow funds to cover: (1) costs of anticipated replacement or rebuilding of equipment; and (2) any large unanticipated operation and maintenance costs; and

i. Other costs: Items that do not fit any of the above categories.

TASK 10: REPORTS

U.S. DOE or its agent(s) shall prepare a Corrective Measures Study (CMS) Report presenting the results of Tasks 7 through 9.

A. Progress

U.S. DOE or its agent(s) shall at a minimum provide U.S. EPA with signed, monthly progress reports containing:

1. An estimate of the percentage of the CMS work completed;

2. Summaries of all problems encountered during the reporting period; and

3. Projected work for the next reporting period.

B. Draft

The Report shall, at a minimum, include:

1. A description of the facility, including a site topographic map and preliminary layouts.

2. A summary of the corrective measures(s), including;

   a. Description of the corrective measure(s) and rationale for selection;

   b. Performance expectations;

   c. Preliminary design criteria and rationale;

   d. General operation and maintenance requirements; and

   e. Long-term monitoring requirements.

ATTACHMENT III

SCOPE OF WORK FOR THE CORRECTIVE MEASURE IMPLEMENTATION
AT PORTSMOUTH URANIUM ENRICHMENT COMPLEX

PURPOSE

The purpose of this Corrective Measure Implementation (CMI) program is to design, construct, operate, maintain, and monitor the performance of the corrective measure(s) selected to protect human health and the environment. U.S. DOE or its agent(s) will furnish all personnel, materials and services necessary for the implementation of the corrective measure or measures.

SCOPE

The Corrective Measure Implementation programs consists of four tasks:

Task 12: Corrective Measure Implementation Program Plan

- A. Program Management Plan
- B. Community Relations Plan

Task 13: Corrective Measure Design

- A. Design Plans and Specifications
- B. Operation and Maintenance Plan
- C. Cost Estimate
- D. Construction Quality Assurance Objectives
- E. Health and Safety Plan
- F. Design Phases

Task 14: Corrective Measure Construction

- A. Responsibility and Authority
- B. Construction Quality Assurance Personnel Qualifications
- C. Inspection Activities
- D. Sampling Requirements
- E. Documentation

Task 15: Reports

- A. Progress
- B. Draft
- C. Final

TASK 12: CORRECTIVE MEASURE IMPLEMENTATION PROGRAM PLAN

U.S. DOE or its agent(s) shall prepare a Corrective Measure Implementation Program Plan. This program will include the development and implementation of several plans, which require concurrent preparation. It may be necessary to revise plans as the work is performed to focus efforts on a particular problem. The Program Plan includes the following:

A. Program Management Plan

U.S. DOE or its agent(s) shall prepare a Program Management Plan which will document the overall management strategy for performing the design, construction, operation, maintenance and monitoring corrective measure(s). The plan shall document the responsibility and authority of all organizations and key personnel involved with the implementation. The Program Management Plan will also include a description of qualifications of key personnel directing the Corrective Measure Implementation Program, including contractor personnel.

B. Community Relations Plan

U.S. DOE or its agent(s) shall revise the Community Relations Plan to include any changes in the level of concern of information need to the community during design and construction activities.

1. Specific activities which must be conducted during the design stage are the following:

   a. Revise the facility Community Relations Plan to reflect knowledge of citizen concerns and involvement at this stage of the process; and

   b. Prepare and distribute a public notice and updated fact sheet at the completion of engineering design.

2. Depending on the level of citizen interest at a facility during the construction phase of the corrective action process, community relation activities could range from group meeting to fact sheets on the technical status.

TASK 13: CORRECTIVE MEASURE DESIGN

U.S. DOE or its agent(s) shall prepare final construction plans and specifications to implement the corrective measure(s) at the facility as defined in the Corrective Measure Study.

A. Design Plans and Specifications

U.S. DOE or its agent(s) shall develop clear and comprehensive design plans and specifications which include but are not limited to the following:

1. Discussion of the design strategy and the design basis, including:

   a. Compliance with all applicable or relevant environmental and public health standards; and

   b. Minimization of environmental and public impacts.

2. Discussion of the technical factors of importance, including:

   a. Use of currently accepted environmental control measures and technology;

   b. The constructability of the design; and

   c. Use of currently acceptable construction practices and techniques.

3. Description of assumptions made and detailed justification of these assumptions.

4. Discussion of the possible sources of error and references to possible operation and maintenance problems.

5. Detailed drawings of the proposed design, including:

   a. Qualitative flow sheets; and

   b. Quantitative flow sheets.

6. Tables listing equipment and specifications.

7. Tables giving material and energy balances.

8. Appendices, including:

   a. Sample calculations (one example presented and explained clearly for each type of calculation);

   b. Derivation of equations essential to understanding the report; and

   c. Results of laboratory or field tests.

B. Operation and Maintenance Plan

U.S. DOE or its agent(s) shall prepare and Operation and Maintenance Plan to cover both implementation and long term maintenance of the corrective measure. The plan shall be composed of the following elements:

1. Description of normal operation and maintenance (O&M), including:

   a. Description of tasks for operation;

b. Description of tasks for maintenance;

c. Description of prescribed treatment or operation conditions; and

d. Schedule showing frequency of each O&M task.

2. Description of potential operating problems, including:

a. Description and analysis of potential operation problems;

b. Sources of information regarding problems; and

c. Common and/or anticipated remedies.

3. Description of routine monitoring and laboratory testing, including:

a. Description of monitoring tasks;

b. Description of required laboratory tests and their interpretation;

c. Required QA/QC; and

d. Schedule of monitoring frequency and date, if appropriate, when monitoring may cease.

4. Description of alternate O&M, including:

a. Should systems fail, alternate procedures to prevent undue hazard; and

b. Analysis of vulnerability and additional resource requirements should a failure occur.

5. Safety plan, including:

a. Description of precautions, of necessary equipment, etc., for site personnel; and

b. Safety tasks required in event of systems failure.

6. Description of equipment, including:

a. Equipment identification;

b. Installation of monitoring components;

c. Maintenance of site equipment; and

d. Replacement schedule for equipment and installed components.

7. Records and reporting mechanisms required, including:

   a. Daily operating logs;

   b. Laboratory records;

   c. Records for operating costs;

   d. Mechanism for reporting emergencies;

   e. Personnel and maintenance records; and

   f. Monthly/annual reports to State agencies.

   An initial Draft Operation and Maintenance Plan shall be submitted simultaneously with the Prefinal Design Documents submission and the Final Operation and Maintenance Plan with the Final Design Documents.

C. Cost Estimate

U.S. DOE or its agent(s) shall develop cost estimates for the purpose of assuring that the facility has the financial resources necessary to construct and implement the corrective measure. The cost estimate developed in the Corrective Measure Study shall be refined to reflect the more detailed/accurate design plans and specifications being developed. The cost estimate shall include both capital and operation and maintenance.

D. Construction Quality Assurance Objectives

U.S. DOE or its agent(s) shall identify and document the objectives and framework for the development of a construction, quality assurance program including, but not limited to the following: responsibility and authority, personnel qualifications, inspection activities, sampling requirements, and documentation.

E. Health and Safety Plan

U.S. DOE or its agent(s) shall modify the Health and Safety Plan developed for the RCRA Facility Investigation to address the activities to be performed at the facility to implement the corrective measure(s).

F. Design Phases

1. Preliminary design

   U.S. DOE or its agent(s) shall submit the Preliminary design when the design effort is approximately 30% complete. At this stage U.S. DOE or its agent(s) shall have field verified the existing conditions of the facility. The preliminary design shall reflect a level of effort such that technical requirements of the project have been addressed and outlined so they may be reviewed to determine if the final design

will provide an operable an usable corrective measure. Supporting data and documentation shall be provided with the design documents defining the functional aspects of the program. The preliminary construction drawings by the Respondent or its agent(s) shall reflect organization and clarity. The scope of the technical specifications shall be outlined in a manner reflecting the final specifications. U.S. DOE or its agent(s) shall include with the preliminary submission design calculations reflecting the same percentage of completion as the designs they support.

2. Intermediate design

Complex project design may necessitate review of the design documents between the preliminary and prefinal/final design. At the discretion of the Agency, a design review may be required at 60% completion of the project. The intermediate design should include the same elements as the prefinal design.

3. Correlating plans and specifications

General correlation between drawings and technical specifications, is a basic requirement of any set of working construction plans and specifications. Before submitting the project specifications U.S. DOE or its agent(s) shall:

a. Coordinate and cross-check the specifications and drawings;

b. Complete the proofing of the edited specifications and required cross-checking of all drawings and specifications.

These activities shall be completed prior to the 95% prefinal submittal to this Agency.

4. Equipment start-up and operator training

U.S. DOE or its agent(s) shall prepare, and include in the technical specification governing treatment systems, contractor requirements for providing: appropriate service visits by experienced personnel to supervise the installation, adjustment, startup and operation of the treatment systems, and training covering appropriate operational procedures once the startup has been successfully accomplished.

5. Additional studies

Corrective Measure Implementation may require additional studies to supplement the available technical data. At the direction of the Agency for any such studies required, U.S. DOE or its agent(s) shall furnish all services, including field work as required, materials, supplies, plant, labor equipment, investigations, studies and superintendence. Sufficient sampling, testing and analysis shall be performed to optimize the required treatment and/or disposal operations and system. There shall be an initial meeting of all

principal personnel involved in the development of the program. The purpose will be to discuss objectives, resources, communication channels, role of personnel involved and orientation of the site, etc. The interim report shall present the results of the testing with the recommended treatment of disposal system (including options). A review conference shall be scheduled after the interim report has been reviewed by all interested parties. The final report of the testing shall include all data taken during the testing and summary of the results of the studies.

6. Prefinal and final design

U.S. DOE or its agent(s) shall submit the prefinal/Final design documents in two parts. The first submission shall be at 95% completion of design (i.e., prefinal). After approval of the prefinal submission, U.S. DOE or its agent(s) shall execute the required revisions and submit the final documents 100% complete with reproducible drawings and specifications.

The prefinal design submittal shall consist of the Design Plans and Specifications, Operation and Maintenance Plan, capital and Operating and Maintenance Cost Estimate, Quality Assurance Plan and Specifications for the Health and Safety Plan.

The final design submittal shall consist of the Final Design Plans and Specifications (100% complete), Final Construction Cost Estimate, Final Draft Operation and Maintenance Plan, Final Quality Assurance Plan, and Final Health and Safety Plan specifications. The quality of the design documents should be such that U.S. DOE or its agent(s) would be able to include them in a bid package and invite contractors to submit bids for the construction project.

TASK 14: CORRECTIVE MEASURE CONSTRUCTION

Following U.S. EPA approval of the final design, U.S. DOE or its agent(s) shall develop and implement a construction quality assurance (CQA) program to ensure, with a reasonable degree of certainty, that a completed corrective measure(s) meets or exceeds all design criteria, plans and specifications. The CQA plan is facility specific document which must be submitted to the Agency for approval prior to the start of construction. At a minimum, the CQA plan should include the elements which are summarized below.

A. Responsibility and Authority

The responsibility and authority of all organizations (i.e, technical consultants, construction firms, etc.) and key personnel involved in the CQA plan and the necessary supporting inspection staff.

B. Inspection Activities

The observation and tests that will be used to monitor the construction and/or installation of the components of the corrective measure(s) shall

be summarized in the CQA plan. The plan shall include the scope and frequency of each type of inspection. Inspections shall verify compliance with all environmental requirements and include, but not be limited to air quality emissions monitoring records, waste disposal records (e.g., RCRA transportation manifests), etc. The inspection should also ensure compliance with all health and safety procedures. In addition to oversight inspections, U.S. DOE or its agent(s) shall conduct the following activities.

1. Preconstruction inspection and meeting

   U.S. DOE or its agent(s) shall conduct a preconstruction inspection and meeting to:

   a. Review methods for documenting and reporting inspection data;

   b. Review methods for distributing and storing documents and reports;

   c. Review work area security and safety protocol;

   d. Discuss any appropriate modifications of the CQA plan to ensure that site-specific considerations are addressed; and

   e. Conduct a site walk-around to verify that the design criteria plans, and specifications are understood and to review material and equipment storage locations.

   The preconstruction inspection and meeting shall be documented by a designated person and minutes should be transmitted to all parties.

2. Prefinal inspection

   Upon preliminary project completion, U.S. DOE or its agent(s) shall notify U.S. EPA for the purposes of conducting a prefinal inspection. The prefinal inspection will consist of a walk-through inspection of the entire project site. The inspection is to determine whether the project is complete and consistent with the contract documents and the U.S. EPA-approved corrective measure. Any outstanding construction items discovered during the inspection will be identified and noted. Additionally, treatment equipment will be operationally tested by U.S. DOE or its agent(s). U.S. DOE or its agent(s) will certify that the equipment has performed to meet the purpose and intent of the specifications. Retesting will be completed where deficiencies are revealed. The prefinal inspection report should outline the outstanding construction items, actions required to resolve items, completion date for these items, and date for final inspection.

3. Final inspection

   Upon completion of any outstanding construction items, U.S. DOE or its agent(s) shall notify U.S. EPA for the purposes of conducting a final

inspection. The final inspection will consist of a walk-though inspection of the project site. The prefinal inspection report will be used as a checklist with the final inspection focusing on the outstanding construction items identified in the prefinal inspection. Confirmation shall be made that outstanding items have been resolved.

D. Sampling Requirements

The sampling activities, sample size, sample locations, frequency of testing, acceptance and rejection criteria, and plans for correcting problems as addressed in the project specifications should be presented in the CQA plan.

E. Documentation

Reporting requirements for CQA activities shall be described in detail in the CQA plan. This should include such items as daily summary reports, inspection data sheets, problem identification and corrective measures reports, design acceptance reports, and final documentation. Provisions for the final storage of all records should also be presented in the CQA plan.

TASK 15: REPORTS

U.S. DOE or its agent(s) shall prepare plan, specifications, and reports as set forth in Tasks 12 through 15 to document the design, construction, operation, maintenance, and monitoring of the corrective measure. The documentation shall include, but not be limited to the following:

A. Progress

U.S. DOE or its agent(s) shall at a minimum provide U.S. EPA with signed, monthly progress reports containing:

1. An estimate of the percentage of projects completed;

2. Summaries of all change orders and claims made on the program during the reporting period;

3. Summaries of all contracts with representatives of the local community public interest groups or State government during the reporting period;

4. Summaries of all problems or potential problems encountered during the reporting period;

5. Projected work for the next reporting period; and

6. Copies of daily reports, change orders, inspection reports, laboratory/monitoring data, etc.

B. Draft

1. U.S. DOE or its agent(s) shall submit a draft Corrective Measure Implementation Program Plan as outlined in Task 12.

2. U.S. DOE or its agent(s) shall submit Construction Plans and Specifications, Design Reports, and Study Reports as outlined in Task 13;

3. U.S. DOE or its agent(s) shall submit a draft Construction Quality Assurance Program Plan and Documentation as outlined in Task 14; and

4. At the "completion" of the construction of the project, Portsmouth Uranium Enrichment Complex shall submit a Corrective Measure Implementation Report to both the U.S. EPA and OEPA. The Report shall document that the report is consistent with the design specifications, and that the corrective measure is performing adequately. The Report shall include, but not be limited to the following elements:

   a. Synopsis of the corrective measure and certification of design and construction;

   b. Explanation of any modifications to the plans and why these were necessary of the project;

   c. Listing of the criteria established before the corrective measure was initiated, for judging the functioning of the corrective measure and also explaining any modification to these criteria;

   d. Results of facility monitoring, indicating that the corrective measure will meet or exceed the performance criteria; and

   e. Explanation of the operation and maintenance (including monitoring) to be undertaken at the facility.

   This report should include problem identification and corrective measure reports, block evaluation reports, photographic reporting data sheets, design engineers' acceptance reports, deviations from design and material specifications (with justifying documentation) and as-built drawings.

C. Final

U.S. DOE or its agent(s) shall finalize the Corrective Measure Implementation Program Plan, Construction Plans and specifications, Design Reports, Study Reports, Construction Quality Assurance Program Plan/Documentation and the Corrective Measure Implementation Report incorporating comments received on draft submissions.

B. Draft

1. U.S. DOE or its agent(s) shall submit a draft Corrective Measure Implementation Program Plan as outlined in Task 12.

2. U.S. DOE or its agent(s) shall submit Construction Plans and Specifications, Design Reports, and Study Reports as outlined in Task 13;

3. U.S. DOE or its agent(s) shall submit a draft Construction Quality Assurance Program Plan and Documentation as outlined in Task 14; and

4. At the "completion" of the construction of the project, Portsmouth Uranium Enrichment Complex shall submit a Corrective Measure Implementation Report to both the U.S. EPA and OEPA. The Report shall document that the report is consistent with the design specifications, and that the corrective measure is performing adequately. The Report shall include, but not be limited to the following elements:

   a. Synopsis of the corrective measure and certification of design and construction;

   b. Explanation of any modifications to the plans and why these were necessary of the project;

   c. Listing of the criteria established before the corrective measure was initiated, for judging the functioning of the corrective measure and also explaining any modification to these criteria;

   d. Results of facility monitoring, indicating that the corrective measure will meet or exceed the performance criteria; and

   e. Explanation of the operation and maintenance (including monitoring) to be undertaken at the facility.

   This report should include problem identification and corrective measure reports, block evaluation reports, photographic reporting data sheets, design engineers' acceptance reports, deviations from design and material specifications (with justifying documentation) and as-built drawings.

C. Final

U.S. DOE or its agent(s) shall finalize the Corrective Measure Implementation Program Plan, Construction Plans and specifications, Design Reports, Study Reports, Construction Quality Assurance Program Plan/Documentation and the Corrective Measure Implementation Report incorporating comments received on draft submissions.